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All Advertisements intended for insertion in the current Month must be sent to **THE PUBLISHER** on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 a.m. on the morning previous to publication.

Our COUNTRY and COLONIAL SUBSCRIBERS are requested to furnish the Editor with any trade gossip that they may consider interesting.

Subscribers are requested to observe that, for the future, the receipt of **THE CHEMIST AND DRUGGIST** in a Green Wrapper indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Editorial Notes.

A GREAT many subscribers will receive this number of the **CHEMIST AND DRUGGIST** in a green wrapper. By this means we wish to intimate that renewed subscriptions are due. We shall greatly appreciate the courtesy of those who will remit early, as it will very much lighten our office labour. Printed receipts will be given for all subscriptions personally received, but we can only send these by post if a stamped directed envelope is enclosed for that purpose. The annual subscription is 7s. 6d. Chemists and Druggists are also requested to order at the same time the "Chemists' and Druggists' Almanac and Pharmaceutical Text-book for 1870." The price of this is 1s. 2d., free by post; or on superior paper, and better bound and finished, 1s. 8d. post free. For its contents our readers are referred to the review printed in another part of our journal. The Almanac is now being posted to subscribers as fast as copies can be got from the binders. In a day or two our stock will be sufficient to supply all orders promptly; but this slight delay must be excused as the pressure on London binders is very great at the approach of Christmas.

With our January number we commence a new volume, in which we hope to give further evidences of our desire to retain the confidence of our subscribers. We intend to strengthen our staff of contributors, and to make the contents of each monthly number indispensable to all pharmacists who wish to keep pace with the leaders of their body. Our scientific departments will be enriched by original communications from well-known writers, and our special character as a trade journal will be consistently maintained by the regular publication of reports of all transactions affecting the business of the chemist and

druggist. Though we do not think it advisable to show all our cards, there is one that we have no wish to conceal. We propose next year to present our subscribers with a series of

PORTRAITS OF EMINENT PHARMACISTS, with short biographical notices. The portraits will be lithographed in the best style, and printed on plate paper. A full account of our arrangements respecting this proposed addition to our usual contents will be given in our next. We expect to make great progress during the coming year; and with hearty good wishes for the welfare of our subscribers, we take leave of them for a while, to prepare for a fresh start.

A LAW CASE of considerable interest and importance to the drug trade is reported in another part of this journal. We refer to the action brought against Messrs. NEWBERRY, BARCLAY, and EDWARDS, for selling benzene of various kinds in contravention of the Petroleum Act of 1868, they not being duly licensed. As we have reason to believe that the Act is being infringed in the same manner by some hundreds of our readers, we think it important to call special attention to our report. Singularly enough, the three firms summoned on this occasion appear to represent every possible kind of violation of the law. Messrs. NEWBERRY had applied for a licence, and had been refused; Messrs. BARCLAY had likewise applied, but the answer obtained had only indicated certain conditions which were to be complied with before their application could be considered; and Mr. EDWARDS had not applied for a licence at all. These firms, with several others, advertised their intention to discontinue the sale of benzene in the **CHEMIST AND DRUGGIST**, and for some time none of the preparations which, under various names, came under the Petroleum Act could be obtained from them. When the Home Secretary introduced an Amendment Act which would have permitted the sale of this article in capsuled bottles, chemists at once concluded, perhaps without sufficient investigation, that the licence was no longer necessary; and this conclusion was the more readily arrived at as the restrictions injured trade. The Amendment Act, however, was never passed, not from any opposition, but simply from want of opportunity. Consequently Sir Robert Carden could not have done otherwise than convict; and we think the case was decided in a very reasonable and considerate spirit. We are not quite so sure of the spirit of the City authorities in instituting the prosecution, and it was certainly rather hard on the firms summoned to have to bear the expense and annoyance of a trial. Indeed it is always unpleasant to be scapegoats, though, as it happens in this instance, the sufferers were well chosen. To them the penalty was, as the magistrate described it, "merely nominal," but the small fine to many would be something more than nominal. In the next session of Parliament it will be necessary to see that this defect in the Act is remedied; in the meanwhile, let chemists beware, and avoid the sale, or storage, of benzene unless they are provided with a licence. Except in the City of London, we believe, there is not much difficulty in obtaining these licences, the granting of which lies in the hands of the local authorities. In some parts of the country a fee is charged, and when the local boards are rather "hard up," as is often the case, a large influx of petroleum dealers would be, we doubt not, cordially welcomed. The legality of this charge is doubtful, and we believe, it is not demanded either by the City or the Metropolitan Board of Works.

The honorary secretary of the Manchester Chemists' and Druggists' Association has favoured us with an abstract of

an interesting discussion on Pharmacy in its relation to the medical profession, which occurred at their last meeting, and which we publish elsewhere. In Mr. HAMPSON'S paper, and in some of the remarks which follow, we find the whole gist of the difficult question. The fact is, chemists cannot live on prescriptions alone, nor, in many cases, can physicians either. We pity the doctor who has to keep a shop far more than we blame him, for we are well aware that he would much rather have nothing but pens, ink, and paper in stock if he could help it. But if we may extend Mr. HAMPSON'S calculation to the whole country, and assume that two new prescriptions and, perhaps, twice as many "repeats," make a fair rough estimate of the average daily dispensing trade of every chemist—and at the same time consider the lion's share which falls to some houses—we cannot but be strongly convinced of the necessity of a chemist and druggist being a great deal more than a dispenser merely; and even should he trespass on the physician's domain occasionally, we do not know who has a right to cast the first stone at him.

We are requested by the Secretary of the Pharmaceutical Society to communicate to our subscribers the pleasing intelligence that LANDSEER'S admirable portrait of JACOB BELL is now ready for publication. We have no doubt that a large number of copies will be sold, particularly when it is generally known that Mr. HILLS purposes devoting the receipts to a fund for the encouragement of those pharmaceutical students who pass the best examinations.

We remind our readers that the Chemists' Annual Ball will be held at Willis's Rooms, St. James's, on the 19th of January. The Printer's Devil has saved the following scrap from our waste-paper basket:—

My friend, you're looking very strange,
Let me prescribe a little change,
And anti-hypochondriac fare;
Your black looks give us all the blues.
You'd better mind your P's and Q's,
Or you you're customers will scare!

Suppose you try our magic pill,
A remedy for every ill.

For vapours, megrims, sulks, and glooms.
This sugar-coated pill we call
Among ourselves "The Chemists' Ball"—
And Willis sells it at his Rooms.

Pharmaceutical Society of Great Britain.

EVENING MEETING, WEDNESDAY, DEC. 1, 1899.

MR. H. SUGDEN EVANS, PRESIDENT, IN THE CHAIR.

THE minutes of the preceding meeting having been read, subsequent donations to the library and museum were acknowledged.

Mr. HOWARD read a paper on the
CULTIVATION OF THE CINCHONA UNDER GLASS IN ENGLAND.

The author had had upwards of ten years' experience in the cultivation of cinchona under glass in England, and he had now twenty different varieties, in various stages of development. He drew especial attention to the great advantages which attend the cultivation of the living plants, the facilities which are thus offered for studying their physiological appearances. The influence of light alone is so great that its regulation becomes a matter of some difficulty. The leaves of many specimens are extremely sensible

to light, and the beauty of these, and the general beauty of many of the varieties, will alone repay cultivation, if such is made the object. Respiration, hybernation, and nutrition are points which require very particular and close attention. The roots spread superficially, and require plenty of water, which, however, must not be allowed to stand. Cinchona flourishes in some countries where the rainfall is very great, because the slope of the ground permits the water to run away almost immediately. Under glass, less water must be given in dark and gloomy weather, drainage must be provided for, and a slight and constant elevation of temperature maintained. In winter, the average temperature should be 55° F.; in summer, 65°. The cinchonæ are mountain plants, loving free air and sunshine, and, therefore, not flourishing in the close air of the valleys. Increased heat and light seem always to cause an increased production of cinchonidine. The author here diverged, and expressed his sense of the impossibility of referring the laws of vegetable growth to mechanics and chemistry alone, dwelling on the necessity of supposing a vital force as the directing agent.

In reply to a query by Professor Bentley, Mr. Howard said he modified the light in his conservatory by means of coloured glass and blinds. He had made many interesting observations on the influence of actinism.

In reply to a question put by Professor Atfield, Mr. Howard said he had analysed a sample of bark of his own growth, and found it to contain quinine equivalent to 1.38 per cent. of pure sulphate of quinine. The amount of cinchonidine was less than might be expected, the deficiency being due to the want of light.

Professor REDWOOD read some

NOTES ON THE PHARMACOPOEIA.

The author considered that now two years have elapsed since the publication of the last edition of the "Pharmacopœia," it is time to ascertain how far it fulfils its requirements. Frequent comments have been made on its contents at the evening meetings of the Society, and in the pharmaceutical and medical journals, etc. A work so extensively used as the "British Pharmacopœia" is referred to by different persons for distinct and different purposes, and is expected to contain the requirements of all, in the form specially suitable to each. Hence a great difference of opinion exists as to its degree of perfection.

Professor Redwood finds that it is his duty to note the purport of the various opinions, to collect facts; indeed, to adopt every means for making our Pharmacopœia equal, if not superior to any other. He would notice several of its features:—

First. In reference to its language, which is English, some advocate that it should be written in Latin, in favour of which view there are strong arguments. But it is important that the language of the Pharmacopœia be explicit and complete, and many modern terms have but imperfect representatives in Latin. The inadequacy of Latin may account for the imperfection of the Pharmacopœias already written in that language.

Second. The arrangement of the Pharmacopœia. This is supposed to give general satisfaction.

Third. In nomenclature, no great or important changes have been made, yet some are desirable; and new names have been introduced which are explicit, yet do not imply theory. This remark applies specially to chemical compounds. The author expressed his strong opinion that words applied in medicine should not be altered without strong reason.

Fourth. The notation has, for various reasons, been introduced in both the new and old forms: this is not now necessary; the new will suffice.

Fifth. *The terms employed for representing proportions* may be either the weights in use, or may be simply numbers representing so many parts. The latter method involves weighing both liquids and solids, and although in use on the Continent, would meet with much opposition here.

Sixth. *The method of describing or setting out the formulæ of processes* is a very important point in the construction of the Pharmacopœia. The formulæ should be arranged in such a manner as to readily communicate a knowledge of the ingredients and their proportions. The name of each separate ingredient should occupy a line, and the quantities should be expressed in figures. One disadvantage attending the latter plan is the greater possibility of error in printing figures than words. Here the author took the opportunity of pointing out the necessity of referring to the corrections of the Pharmacopœia, published in the *Pharmaceutical* and other journals, and now introduced into the copies of the Pharmacopœia in the form of slips.

Professor Redwood drew attention to the above points, in order to elicit an expression of opinion on the various subjects. He next proceeded to notice a number of the Pharmacopœia processes, against the form of which exception has been made. Some of these may be modified at a future date, whilst the objections against others are unfounded, or have been removed. The notes referred to the following processes:—

ACIDUM SULPHUROSUM.

The Pharmacopœia preparation is a saturated, or nearly saturated, aqueous solution of the gas. It is difficult to prevent loss by escape of gas from this solution, and the strength of the preparation is practically liable to great variation. A weaker solution would, therefore, be better. Dr. Redwood would recommend that the acid should be ordered to contain 5 per cent. of sulphuric acid, instead of 9·2. Such a solution might be made by diluting the stronger acid, or by arresting the process at the required point.

In addition to sulphurous acid, Dr. Redwood thought that it might be desirable to add solutions of acid sulphite of lime and neutral sulphite of soda, or similar preparations to the British Pharmacopœia.

CHLOROFORM.

The danger that might result from any impurity in chloroform renders it very important that the Pharmacopœia process should yield a product not only pure at the time of preparation, but that it should remain so. The author had heard of samples which had become impure after a few weeks. The question arises whether this fault is due to the process. In accordance with a suggestion of the Medical Council, Dr. Redwood undertook some experiments, in order to elucidate this point. The opinion he had arrived at was, that if the chloroform be prepared according to the process given in the Pharmacopœia, and if it be purified according to that process, it will keep for years. The subsidiary object was to ascertain what was the cause of the instability complained of. Some years ago, it was difficult to obtain samples from which acid fumes were not emitted. Dr. Redwood had seen or heard a statement that it was due to one of two causes—either to too complete dehydration, or to the use of impure sulphuric acid. The first supposition is negatived by the fact that Dr. Redwood had prepared chloroform as anhydrous as possible which had kept perfectly. In studying the effects caused by impurities in the sulphuric acid, the author soon satisfied himself that if chloroform be purified by the use of ordinary oil of vitriol, the product is liable to decomposition; if, however, the acid which the British Pharmacopœia has in contemplation be

used, the product keeps perfectly well. Great care should be taken to have the sulphuric acid free from nitric acid. Dr. Redwood had purified portions of one and the same sample of chloroform with ordinary oil of vitriol, with pure distilled acid, and with pure acid, to which two drops of nitric acid to the ounce had been added. The portion purified with pure acid alone kept, whilst that to which nitric acid had been added decomposed in a very short time. Much investigation convinced Dr. Redwood that if pure materials be used, such as have been contemplated by the compilers of the Pharmacopœia, a very stable product may be obtained.

TEST FOR CINCHONA BARK.

The variation in the quantity of alkaloid contained in different samples of cinchona renders it necessary that a minimum amount should be specified by the British Pharmacopœia. Doubts have been entertained whether the test given is the best. Dr. Redwood had been for years acquainted with the best processes for testing cinchona, and the Pharmacopœia process was not one which he should have adopted. If he were again revising for publication, he would suggest some modifications; for instance, he would boil the bark with the acidulated water (he did not consider the modifications induced by boiling were important), and by subsequent expressions would expect to exhaust the bark in less time, and by the use of less fluid. In consequence of the resinous nature of the alkaloid, it holds the ether very tenaciously, and there is some difficulty in getting it into a state fit for weighing. Dr. Redwood would, therefore, recommend that after separation, the alkaloid be dissolved in sulphuric acid, precipitated with ammonia, dried, and weighed. The above liability to error would thus be eliminated.

EXTRACTUM ERGOTE.

The use of ether in the preparation of this extract has been condemned as costly. As the object is to get the aqueous, and not the ethereal extract, and as the oil removed by the ether is not soluble in water, the use of ether might be omitted. This subject might, however, be further worked out.

FERRUM REDACTUM.

This preparation is essentially metallic iron in a fine state of division, containing some magnetic oxide which it is difficult to remove. The defect is, that if not properly prepared, it may yield hydrosulphuric acid by the action of acids, by which its medical effect would be modified. The practical difficulty met with is, that it is not easy to wash out all the sulphate from the peroxide, and that any that remains is reduced by the hydrogen to the form of sulphide. Dr. Redwood would recommend that the instructions given in the French Codex be followed, namely, that the oxide must be precipitated from the *chloride* of iron—that it is not to be precipitated with a fixed alkali, but with pure caustic ammonia.

GREEN IODIDE OF MERCURY.

Dr. Redwood would recommend that this compound, on account of its great variability, be expunged from the Pharmacopœia.

WHITE PRECIPITATE.

There are two methods for the preparation of this compound—the Pharmacopœia method, and one which yields a greater product. The two products may be distinguished by the fact that the one fuses, whilst the other does not.

LINIEMENTUM POTASSII IODIDI CUM SAPONE.

Dr. Redwood would suggest that either the whole or a part of the hard soap used in this preparation be replaced with soft soap, as by so doing a product is obtained which is permanently clear and gelatinous.

LIQUOR MAGNESIÆ CARBONATIS.

The strength ordered by the Pharmacopœia is thirteen grains of carbonate of magnesia to the ounce. There is considerable difficulty in making such a solution, and more in keeping it; therefore, it is desirable that the strength be reduced to ten grains to the ounce.

Dr. Redwood also made remarks on the

TEST FOR OPIUM,

which is not so good as it might be. And on

MISTURÆ SCAMMONI,

to which it has been recommended that gum be added. Also on

BURGUNDY PITCH,

the statement as to the "locality" of which is not correct.

In addition to the notes outlined as above, Dr. Redwood also suggested that the following preparations might be mentioned in the Pharmacopœia:—

Lactic acid.

Acetic ether: a very agreeable and efficacious preparation; a good solvent for cantharides.

Chlorodyne: it is doubtful what preparation could be found to represent this remedy.

Citrate of Magnesia.

Pepsine: a description of the process for the preparation of this substance is now given in the Paris Codex.

As the hour was already late, the discussion on Dr. Redwood's very important communications was adjourned until the next meeting.

MEETING OF THE COUNCIL, NOV. 3RD, 1869.*

MR. H. SUGDEN EVANS, PRESIDENT, IN THE CHAIR.

PRESENT—Messrs. Abraham, Bottle, Bourdas, Car-teighe, Edwards, Haselden, Hills, Ince, Mackay, Morson, Randall, Sandford, Savage, Stoddart, and Williams. The minutes of the previous meeting were read and confirmed.

The President reported that he had conveyed the thanks of this Society to the Pharmaceutical Society of Austria, as expressed in resolution of the Council, and that he had received the following reply from the Secretary:—

"Himmelfortsgasse 17, Vienna, October 25, 1869.

"President H. Sugden Evans, London.

"Dearest and honoured Sir,—Excuse, please, my late answer to your kind letter of October 8; but I assure you I had so much to do that I was not able to answer earlier. First of all I must tell you, dear Sir, that your letter gave me great pleasure, and, fortunately, it happened that we had our Society's Council meeting the same day that your letter arrived, which I laid, with the enclosed copy, and your too flattering description of the Congress, before the members of our Council. All the members present were very much pleased to hear that the Council of your highly-esteemed Association unanimously expressed the wish that a Pharmaceutical Congress should be held at an early future date in London. Loud cheers were given in answer to this cordial proposition, so that I am convinced, an invitation being supposed, Austrian chemists will certainly appear, and with great pleasure, at a future Pharmaceutical Congress in London. I then proposed, at the same meeting, that our Society's best thanks for this graceful courtesy should be expressed to the Council of your Society. The motion was adopted unanimously, and I have the honour to be the interpreter of our feelings. I proposed also that our President, Mr. Beckett, should enter into correspondence with

the four other Presidents forming the Committee for arranging the fourth Pharmaceutical Congress—Messrs. Robinet (Paris), Von Trapp (St. Petersburg), Danckwört (Magdeburg), and Wolfrum (Augsburg)—to invite you, dear Sir, as the President of the greatest Pharmaceutical Society in Europe, to kindly take part in that Committee. Director Beckett and the whole Council were unanimously for this motion, and I hope you will be good enough to accept such an invitation; on the other hand, there cannot be any objection to it from the remaining four Presidents. It will take some time before the invitation can reach you, because the distance between the five Presidents is great. At the same meeting, propositions were made for the election of honorary and corresponding members of our Society. Both you and Professor Redwood will please accept, at an early future period, the diplomas of honorary members, as a sign of the great esteem we all feel for you both. Please to present to Professor Redwood, especially, my best compliments.

"And now, dear Sir, accept my wife's and my own best compliments. Excuse me for the delay of my answer, and believe me,

"Yours very truly affectionate,

"ANTHONY WALDBEIM,

"Pharmaceutical Chemist and Secretary of the
"Austrian Pharmaceutical Society."

The Report of the Finance and House Committee was presented, showing on the General Fund Account a balance in the treasurer's hands of £355 8s. 6d., and submitting for payment accounts and various items amounting to £408 16s. 10d., and on the Benevolent Fund Account a balance of £436 6s. 4d.

Resolved—That the Report be received and adopted, and payments made.

On the recommendation of the Finance and House Committee, it was

Resolved—I. That the estimate of Messrs. Butler and Tanner, Frome, for printing the Register of Chemists and Druggists for the year 1870, be accepted.

II. That a portico facing Bloomsbury-square, in accordance with the plans and specifications submitted, be erected.

III. That a hall-doorkeeper be provided, and that a Commissionaire be in the first instance engaged.

Resolved—That the sum usually received from each of the Jacob Bell Scholars, for the use of materials for the Session, be not taken in future.

A letter from Professor Attfield was read in reference to additional Laboratory accommodation. He stated that fifty-one benches were at present occupied, and that others were engaged. The consideration of the subject was referred to the Library, Museum, and Laboratory Committee.

It was moved by Mr. Sandford, seconded by Mr. Abraham, and

Resolved—That the Secretary be instructed to advertise for a Collector to undertake the duties performed by the late Mr. Calverley.

The Report and proceedings of the Library, Museum, and Laboratory Committee, having been read, were received and adopted.

The Memorandum of Regulations under Section 2 of the Pharmacy Act, 1868, submitted to the Privy Council some time since, was brought forward, its provisions discussed, and the further consideration thereof postponed to the next meeting of this Council.

On the report and recommendation of the Parliamentary Committee, and after due consideration, the Council ordered the names of James Brooklehurst Coare and Charles Miller Footitt, now on the Register of Chemists and Druggists, to be erased therefrom.

* From the *Pharmaceutical Journal*.

The following, being duly registered as pharmaceutical chemists, were severally granted a diploma, stamped with the seal of the Society:—

Messrs. John William Gilbert Candy, Bath; William Markham Colchester, London; Frederick John Machin, Sheffield; Robert Henry Rowell, Newcastle; Isaiah Tansley, Lowestoft.

The following pharmaceutical chemists were elected members:—

Messrs. James Burt, Worthing; John William Coles, Camberwell New-road; Joseph Hallawell, Pendleton; Samuel Serpell, Truro.

Resolved—That Thomas B. Howson, of Eynsham, having paid his arrears and subscription for the current year, be restored to membership.

The following chemists and druggists, registered under the "Pharmacy Act, 1868," were elected members:—

Messrs. Robert Downes, Orange, N. S. Wales; Nicholas Lakeman, Modbury; Henry Hinde Pollard, Ryde, Isle of Wight; Anthony Percy Reboul, 60, Liverpool-road, Islington; Thomas Roper, Ross; Edward Pearson Shaw, Wakefield; Thomas William Smith, Diss; Anthony King Newman Tremearne, 14, North Pier, London Docks; David Pierce Williams, Llanberis.

The following were elected Associates:—Messrs. Sydney Drury, Canterbury; Richard Twemlow, Manchester; Richard Jelley, Elton.

Benevolent Fund.—Mary Gilkes, widow of the late William Gilkes, of Leominster, and Martha Jane Farrow, widow of the late William Farrow, of Woburn, who had at the last election obtained the largest number of votes, were declared elected annuitants, and the treasurer was requested to pay them their annuities to Christmas next.

A sum of £10 was voted for the use and benefit of a distressed registered chemist and druggist, aged seventy-one.

BENEVOLENT FUND.

ELECTION OF ANNUITANTS.

MR. BOURDAS IN THE CHAIR.

A meeting was held at the House of the Society on Friday, the 29th of October, pursuant to notice, for the election of two annuitants on this fund, each to receive £30 per annum.

Six applicants had been placed by the Council on the list of candidates approved for election.

The scrutineers, appointed from the voters present, having examined the votes, reported as follows:—

We, the undersigned scrutineers, appointed at the fifth election of annuitants, on the Benevolent Fund of the Pharmaceutical Society of Great Britain, do hereby certify that we have examined the voting-papers committed to us, and report the following result:—

| | |
|---|------|
| Mary Gilkes, Leominster | 2162 |
| Martha Jane Farrow, Woburn (766 from last election) | 1594 |
| Charles Thos. Anderson, Jersey (135 " ") | 787 |
| John Watkins, London (337 " ") | 703 |
| Hannah Greaves, Rawtenstal (315 " ") | 739 |
| Sarah Wilson, Kendal | 91 |
| Informal Votes | 13 |

M. CARTEIGHE.

CHARLES FRYER.

J. S. WARD.

JOHN WILLIAMS.

MATTHEW POUND.

Scrutineers.

October 29, 1869.

The Secretary announced that Mr. Franks, of Ramsgate,

had sent the sum of 20s. to be divided amongst the four unsuccessful candidates.

Thanks were given to the scrutineers and the chairman.

The votes polled for unsuccessful candidates may be carried forward for four successive elections.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

FRACTURES.

A SHORT time since, a dog was brought to me with its foot in a state bordering on mortification. There had been a broken leg, which was treated by a tight bandage. The unskillful application had caused the state of the foot. To guard against such results of maltreatment, I propose to shortly point out the indications to be followed in the guidance of fractures. I say guidance, for this is all we can do; we merely keep the parts in a favourable position, and Nature effects the cure. A proper understanding of this process of repair will enable us to judge of the best means to be adopted.

Fractures are called simple when the bone is only snapped in two, comminuted when it is splintered, and compound if a wound of the skin accompanies the fracture. The bones most frequently broken are the long bones of the limbs. Fractures of ribs or skull are dangerous from the chance of injury to organs within, and should only be treated by an expert. We shall therefore confine our remarks to more simple cases.

Detection of a fracture below the knee or hock is an easy matter; above this, however, where the bone is well covered with flesh, a careful examination is often necessary.

The symptoms of fracture, in addition to pain and lameness, with sometimes swelling and displacement, are twitching of the muscles and crepitus, i.e., a grating sound heard on moving the bone so as to bring the broken ends into contact. The twitching of the muscles is due to irritation caused by the broken ends. A fracture may be mistaken for dislocation, and *vice versa*. It may therefore be remembered that ordinary extension will reduce a fracture to its proper position, whilst considerable force is required to reduce a dislocation, and when reduced, it remains fixed. A fracture, say of the arm of a dog, is accompanied by swelling, due to blood effused at the part from lacerated vessels. This is rapidly absorbed, and in its place we find organised lymph, which gradually becomes condensed. This material not only surrounds the fracture, but is found between the ends of the bone.

This change takes place in about a week. Then we have bony deposit between and around the ends of the bone, which in time replaces all the plastic material first formed, acting like a ferule to the part. This bony ring in surgery is known as the Provisional Callus, in contradistinction to the Definitive Callus, i.e., the portion between the ends of the bone. These are not separate, but continuous; the difference is that the superfluous encircling mass becomes absorbed, while the intermediate portion remains as the union. Really, however, this also changes, for at first it is a solid, compact mass, but in time, by absorption, it assumes the form and structure of the original bone.

The treatment of fracture, then, consists of two parts, setting and retaining the ends of the bone. Correct adaptation is necessary, as Nature attempts repair in whatever position the parts are kept, and so might perpetuate deformity. In these rough notes, I must leave to the tact of the operator the method of setting, suffice it to say, that success is shown by the outline of the limb and by the

grating together of the ends of the bone. How to retain them in their position in the best manner is what I principally wish to show. This is done by applying such an apparatus as will take the form of the parts, and prevent movement without injuring any of the tissues. We may either use "splints," as thin pieces of wood, cardboard, or gutta-percha, or a long bandage saturated with glue or starch, to give it the requisite firmness. I invariably use the starched bandage; but if glue be preferred, I may advise that it be melted with a little glycerine instead of water. It is thus made softer and tougher.

Do not apply the starched bandage directly to the limb. First roll a dry bandage carefully round, beginning at the toes, and applying it as high on the limb as possible. The joint above and below a fracture should always be fixed if practicable, as movement is thereby reduced to a minimum. A bandage should never be applied to a limb so as to leave a distal portion uncovered, for the compression above is certain to cause swelling below, and if continued, congestion or even gangrene. No matter what part of a limb is fractured. If a bandage be applied, commence at the toes, so as to have a uniform pressure. Over one dry bandage we apply another, well soaked in strong starch. Secure the ends, and keep the dog in a small cage, so as to limit his movements.

This apparatus should remain on for about fourteen days, and be examined daily to see it is not loose or too tight. A compound fracture had better be treated with splints and a simple bandage, so arranged as to allow the wound to be examined without removing the whole arrangement. A comminuted fracture may be treated like a simple one; but if also compound, and any pieces of bone are quite detached, they should be removed.

In fractures of such bones as the thigh, where we cannot apply a bandage, we can fix the hock and stifle joints, and so prevent a good deal of movement. A plaster over the part will also aid if the hair be previously cut short, otherwise it only causes annoyance. These fractures only pay for treatment in pet dogs or bitches, as frequently a false joint saves the animal's life, but renders him lame for life. These remarks specially refer to dogs, but are equally applicable to other animals. The bones of the lower animals unite with great rapidity; but the money value is generally the standard by which we judge of the advisability of treating a fracture. Those kept for stud purposes are generally worth a trial; those for the butcher, never. It must be remembered, too, that the great strength of the muscles in the larger quadrupeds prevents our setting numbers of fractures otherwise curable.

Dentistry.

CEMENTS FOR DENTAL AND OTHER PURPOSES.—POLISHING PROCESSES.

THE following formulae have been communicated to the *Dental Times* of America by Dr. E. WILDMAN, who states that they have been tested and found good:—

Cements for retaining teeth to plate in fitting them down, or to try in the mouth before placing in the investment:

1. Gum mastic, 8 parts.
Yellow wax, 4 "
Colour, q. s.
2. Gum damar, 7 parts.
Yellow wax, 4 "
Colour, q. s.
3. Rosin, 2 parts.
Wax, 1 part.

Nos. 1 and 2 possess very similar properties, being sufficiently adhesive and strong to answer the desired end, and are preferable to No. 3, on account of being firmer and more readily cleaned off the work, prior to applying borax. Gum damar being so much less expensive than mastic, I use No. 2.

To make these cements, place the vessel containing the wax and gum under a moderate heat, just sufficient to melt them, and stir until thoroughly incorporated; then add the colour in quantity to produce the desired shade. Venetian red, drop lake, or vermilion may be used. When all of the ingredients are well mixed, pour into a basin of cold water. To form into sticks, immerse the cake in water sufficiently warm to render it plastic. It is preferable to colour it, as it renders it more slightly, and, also, we are better able to detect minute particles adhering to parts where solder is desired to flow and remove them. If desirable, it may be perfumed by adding an odiferous oil just before pouring into cold water.

The following makes an adhesive cement of a dark colour, which may be made more agreeable to the eye by the addition of Venetian red or vermilion. It answers a good purpose to attach specimens to pedestals, etc.:—

4. Rosin, 4 parts.

Gutta-percha, 1 part.

First melt the rosin, then add the gutta-percha, cut into shreds, and stir until they are united.

No. 5 is a good water-proof cement, but does not possess much strength; it will resist the action of water much better than shellac. An iron vessel coated with this composition will be protected from oxidation. In proof, I tested it on an iron frame aquarium, which, after a constant exposure to water for four years, remained intact.

5. Pitch, 4 ozs.

White wax, 2½ ozs.

Gutta-percha, 3½ ozs.

First melt the pitch and wax together; then add the gutta-percha, cut into shreds, a little at a time, and stir until they are thoroughly incorporated.

To make a cement for building up pebble work, etc., for an aquarian, add to the above, after the ingredients are united, white clay, perfectly dry and finely pulverised, in quantity about one-fourth the weight of the mass. In using the pebbles or articles to be joined, they should be warm, and the cement, in a fluid state, applied with a brush to the surfaces to be united.

Cap Cement (6), so called by the late Professor Faraday. It makes a good strong cement to attach wood to glass. The parts to be united should be made quite hot, the cement applied in a fluid state, then firmly pressed together and retained until cool.

6. Rosin, 5 parts.

Yellow wax, 1 part.

Venetian red, 1 part.

The Venetian red should be thoroughly dried, and in a very fine powder, introduced a little at a time, and stirred into the melted mass.

Shellac Cement.—Gum shellac makes an excellent strong cement for joining small surfaces of wood together, and in many cases is far more convenient than glue. The shellac should be flowed upon the surfaces to be joined, and then they should immediately be pressed firmly together while the shellac is in a fluid state; in a minute or two the pieces will be bound firmly united.

A convenient way of preparing gum shellac for laboratory use is to fuse the gum, as found in the shops, in a suitable vessel over a slow fire, being careful not to raise the heat higher than just sufficient to melt the gum, and, when

fused, cast it in a mould; when cooled sufficiently to be plastic, but not adhesive, it may be worked into sticks. In manipulating this or No. 2, the hands should be kept moist with water.

Alum Cement.—This is principally useful to the dentist in securing an instrument to a pearl handle; it is strong and durable, when not exposed to moisture, and at the same time colourless.

Take the common alum crystals, place in a spoon over a quick fire; the alum melts in its water of crystallisation so as to become perfectly fluid; while in this state, apply to the parts to be united, and press together.

To produce a good result, the whole operation must be performed expeditiously; care to be observed not to allow the water of crystallisation to be driven off, or the fluid to cool before the parts are joined.

To Polish Ivory.—Remove any scratches or file marks that may be present with finely pulverised pumice-stone moistened with water. Then wash the ivory and polish with prepared chalk, applied moist upon a piece of chamois leather, rubbing quickly.

To Polish Pearl.—Take very finely pulverised rotten-stone and make into a thick paste by adding olive oil; then add sulphuric acid (oil of vitriol), a sufficient quantity to make into a thin paste.

This is to be applied on a velvet cork; rub quickly, and as soon as the pearl takes the polish wash it. This mixture, when properly applied, will give to pearl a brilliant polish.

Abstracts of Foreign Papers.

CHLORAL.

AS much attention has been devoted to this compound in consequence of its anæsthetic powers, the *Journal de Pharmacie et de Chimie* has considered it useful to devote a few pages to an account of its preparation, composition, and chemical relations, the following abstract of which may be acceptable to our readers:—Chloral was discovered by Liebig in 1832. When dry chlorine is passed through absolute alcohol, aldehyde and hydrochloric acid are produced: $C_4H_5O_2 + Cl_2 = C_4H_4O_2 + 2HCl$. By continuing the action of the chlorine, chloral is produced: $C_4H_5O_2 + Cl_2 = C_4H_4ClO_2 + 3HCl$. Dumas has detailed the precautions necessary for the successful manufacture of chloral in the *Annales de Chimie et de Physique*, vol. lvi., p. 125. By the process there given, chloral is obtained as an oily liquid, which sometimes crystallises by cold into a solid mass. This mass is melted at a low temperature, and is mixed in a well-closed flask with two or three times its volume of concentrated sulphuric acid, and distilled over the water-bath. This process of distillation over sulphuric acid is repeated, and the product is placed in contact with baryta or slaked lime, which has been recently heated to redness; a final distillation is then effected, that part being collected which distils between 203° and 210° F. This process is slow and costly; but if investigation proves that chloral is superior to chloroform as an anæsthetic, a cheaper method will soon be devised. Chloral is a colourless, oily liquid, with a penetrating odour and caustic taste. According to Dumas, it boils at 166° F.; according to Kopp at 211° F. It is very soluble in water, alcohol, and ether. A solution of chloral in a small quantity of water soon solidifies into a colourless mass, composed of crystals of hydrate of chloral. Chloral becomes modified, and takes an insoluble form when preserved for a long time in sealed tubes. This substance retains the same composition as chloral; it is a white powder, greasy to the touch, of ethereal odour, insoluble in water, alcohol, and ether,

and reconvertible into liquid chloral at a temperature between 300° and 400° F.

PHYSIOLOGICAL ACTION OF CHLORAL.

M. O. Liebreich has communicated a note on the action of chloral on the economy to the *Académie des Sciences*. According to the author, chloral and trichloroacetic salts are among the first of those substances, the physiological effect of which should be studied in more particular reference to the intermediate forms through which they may pass whilst undergoing decomposition in the organism. Alcohol, aldehyde, and acetic acid are completely oxidised in the organism, their ultimate products being water and carbonic acid. Chloral might analogously be expected to be decomposed into its ultimate constituents, and in that case the question arises whether chloroform, an intermediate product of this series, does not exercise its influence on the economy. To decide this question, the author has studied the effects of hydrate of chloral on man and animals. His experiments with rabbits, etc., showed that the effects of chloral are completely analogous to those of chloroform. His experiments on several human patients showed that the effects of the drug were very precise, and were not accompanied by any irritating or disagreeable symptoms such as are produced by morphia, etc.

Dr. B. W. Richardson, F.R.S., has also made experiments on the physiological effect of chloroform, and read a paper on the subject before the Biological Section of the British Association at Exeter. A report of this paper has appeared in the *Medical Times and Gazette*, from which we extract the following summary:—

Hydrate of chloral, administered by the mouth or by hypodermic injection, produces, as Liebreich states, prolonged sleep.

The sleep it induces, as Liebreich also shows, is not preceded by the stage of excitement so well known when chloroform is administered by inhalation.

The narcotic condition is due to the chloroform liberated from the hydrate in the organism, and all the narcotic effects are identical with those caused by chloroform.

In birds the hydrate produces vomiting in the same manner, and to as full a degree, as does chloroform itself.

The sleep produced by hydrate of chloral is prolonged, and during the sleep there is a period of perfect anæsthesia; but this stage is comparatively of short duration.

The action of the hydrate is (as Liebreich assumes) first on the volitional centres of the cerebrum; next, on the cord; and, lastly, on the heart.

As to the practical application of hydrate of chloral, Dr. Richardson remarked that whether it would replace opium and the other narcotics is a point on which he was not prepared to speak. It is not probable it will supersede the volatile anæsthetics for the purpose of removing pain during the performance of surgical operations, but it might be employed to obtain and keep up sleep in cases of painful disease. This research had, however, led to the fact that chloroform, when injected subcutaneously in an efficient dose, leads to as perfect and as prolonged a narcotism as the hydrate, with an absence of other symptoms caused by the hydrate, which are unfavourable to its action. This was a new truth in regard to chloroform, and might place it favourably by the side of the hydrate for hypodermic use. Lastly, as the hydrate acts by causing a decomposition of the blood, i.e., by undergoing decomposition itself and seizing the natural alkali of the blood—it adds to the blood

formate of sodium. How far this is useful or injurious remains to be discovered. But while putting these views as to practical application at once and fairly forward, Dr. Richardson said it was due to Liebreich to add that his (Liebreich's) theory and experiments have done fine service in a physiological point of view. They have shown in one decisive instance that a given chemical substance is decomposed in the living body by virtue of pure chemical change, and that the symptoms produced are caused by one of the products of that decomposition. The knowledge thus definitely obtained admits of being applied over and over again in the course of therapeutical inquiry.

ESSENCE OF COCHLEARIA OFFICINALIS.

M. W. Hofmann has shown that essence of *Cochlearia officinalis* does not, like essence of mustard, and, as is generally supposed, consist of sulphocyanide of allyl. Essence of mustard boils at 147°C ., and that of cochlearia at 160°C . Moreover, whilst thiosinamine, the crystalline compound produced by the action of ammonia in essence of mustard, boils at 70°C ., the compound produced with essence of cochlearia, under similar circumstances, boils at 135°C . According to the author, essence of cochlearia would consist of sulphocyanide of butyl, $\text{C}_4\text{N}(\text{CSH})\text{S}_2$. The crystalline compound produced with ammonia and analogous to thiosinamine would therefore be sulphocyanide of butyl-ammonium, $\text{C}_4\text{H}_9\text{N}_2\text{S}_2$. When butylamine, derived from butylic alcohol produced by fermentation, is treated with sulphide of carbon and oxide of mercury, a compound isomeric with essence of cochlearia, but of a different odour, is formed, which yields a compound with ammonia fusible at 90°C .

PREPARATION OF SALTS ANALOGOUS TO TARTAR EMETIC.

In the *Journal de Pharmacie et de Chimie*, we find that M. G. Fleury prepares double tartrates with base half sesquioxide, half protoxide, by mixing (in an acid or alkaline menstruum) tartaric acid with a salt of the sesquioxide and one of the protoxide. For example, if in a solution of tartaric acid, supersaturated with caustic soda, some nitrate of bismuth be dissolved by agitation, and the mixture diluted with water, a solution is obtained which is precipitable by salts of lime, baryta, magnesia, etc., whether immediately or after the lapse of a little time. For salts of iron, chromium, or aluminium, it is better to employ a solvent acidified with acetic acid. Some of these salts are affected by light, others change colour by exposure to the air. The author also points out that malic and citric acids, which likewise prevent the precipitation of several sesquioxides and protoxides by alkalis, enter into the composition of salts analogous to tartar emetic, and producible under conditions similar to the above.

VAGUE THERAPEUTICS.

UNDER the above title, the *Philadelphia Medical and Surgical Reporter* has an article which we commend to notice, on account of the excellent sense of its remarks on patent medicines. It is quite refreshing to turn from the pages of the medical publications of this country, wherein we are apparently taught that diseases were sent into this world especially and exclusively for the benefit of "duly-qualified members of the profession," to the much more candid and cosmopolitan opinion of our Transatlantic contemporary. The pharmaceutical reader must forgive the writer for his opinion that "the divorce of pharmacy from medicine" is "a most disastrous separation from both arts." *La médecine expectante* is becoming one of the most dangerous

fashions and follies of the day. The decay of faith in drugs has had a disastrous effect on the regular profession as well as on their patients. It has led students to disregard therapeutics and materia medica in favour of diagnosis and do-nothingism, which latter soon brings on know-nothingism. The divorce of pharmacy from medicine—a most disastrous separation for both arts—led to an ignorance of drugs, and this ignorance has naturally brought about a disuse of them. Nevertheless the experience of ages remains the same, and if as a mass physicians do not appreciate the fact that *drugs cure diseases*, or do not avail themselves of it, the non-medical public will soon make capital of such obtuseness. If the inquiry is pushed, why patent medicine vendors have such success, it is because many of them deserve it. They take great pains to secure an excellent recipe for some common complaint, they purchase the purest and freshest drugs to compound it, and they assert and correctly assert that it will cure such and such a disease. A distinguished manufacturing chemist of Brooklyn explained on these grounds the great popularity of many medicines, and no doubt he is correct. If the regular physician is feeble in his faith in the curative powers of Nature's products—the worse for him. The public have such a faith strongly, and are right in holding it.

Another misfortune which attends these lax and drifting notions about therapeutics is that a large portion of the current medical literature of the day is practically worthless. We have huge volumes written on the Practice of Medicine which do not contain a single recipe. The directions for the use of remedies are wholly omitted, or stated so vaguely that they are next to worthless.

A long article recently appeared in a contemporary on the advantages of "the alkaline treatment" in a certain class of diseases. What "the alkaline treatment" actually is, is nowhere stated. A few weeks since we borrowed an item from an English journal on the great success of the "cold water treatment" in epilepsy. We do not know to this day, for certain, nor could we learn from the source we drew from, any particulars or clear directions for the application of the water. Every copy of a medical journal will bear testimony to this neglect of ordinary and simple instructions. It is deemed, forsooth, that they are unnecessary. This is a great error. In reading a case we require to know precisely how much, in what combination, and at what intervals a drug was given, in order to form a correct opinion of its effect on the disease.

CHEMISTS AND THE NEW PETROLEUM ACT.

PROBABLY there have been few Acts of Parliament that have caused such universal dissatisfaction, or given more trouble, or more generally mystified the traders whom it affects, than the New Petroleum Act; and a correspondent has put us in possession of a few practical and thoroughly authentic particulars concerning the position in which the Act places him, which, we consider, for their importance, deserving of recapitulation. The anomalies our correspondent experiences are by no means confined to him alone, but are in point of fact experienced by every dealer in petroleum, and by none more strongly than by chemists and druggists. Our correspondent (a chemist and druggist himself) states that he has just taken out a licence for the sale of benzoline, conformably with the provisions of the Act. His stock of benzoline amounts, he says, to the extremely dangerous quantity of five gallons, which, the provisions of the Act prescribe, shall be locked up, shall be stored at such and such a distance from such and such dwelling houses, shall not be sold after sunset, and in a

word, which are burdened by such cumbersome, anomalous, and unnecessary restrictions as to render its sale, if not impossible, very annoying and unprofitable. This benzoline he is obliged to store in a shed a hundred yards from his shop; while on the contrary (and this shows the absurdity of the restriction), he is allowed to keep his 100 gallons of wood naphtha, which gives off an inflammable vapour at as low a temperature as the benzoline, in his shop with the gas flaming all around, and which he is allowed to sell when and how he pleases. The Act does not contain one restrictive clause about the wood naphtha; in fact, does not mention it. Our correspondent also instances the case where a country magistracy, totally ignorant of what they were doing, fined a druggist £20 for selling this wood naphtha contrary to an Act which never mentions it. Of course this druggist might appeal; but an appeal involves an amount of expense (not mentioning incidental troubles) which every country druggist does not care to hazard. It is well known that this wood naphtha is sold by nearly every chemist, and that it is largely used for the purpose of singeing horses, that it is almost as largely used as petroleum, that it is equally as "dangerous"—according to the usual estimate of its danger—and yet while the sale of petroleum is guarded and restricted and officially superintended, the product of wood naphtha is totally ignored, and may be sold with the greatest freedom; but always with the possibility of some zealous "inspector" seizing it, bringing its vendor before the magistrates, and getting him heavily and unjustly fined. The framing of the New Petroleum Act is a striking evidence of the want of practical men in our legislative enactments, and it is to be hoped that ere long—probably next session—something will be done to ameliorate its many injustices and deceptions.

H. G. H.

TINCTURES.

THERE are no preparations in a druggist's stock which are so variably made as tinctures. They are so easily made, and when made are often so much alike in appearance, whether they do or do not contain the active principles of the drugs which they are supposed to represent, that when we remember the usual conditions of their manufacture, we almost wonder that some of them produce any effect at all. The work of tincture-making generally falls to the lot of the youngest apprentice in large establishments; and apprentices, of the last generation, at any rate, were not the most conscientious mortals under the sun. Of course, if the superior was a good judge of pharmaceutical preparations and a vigilant superintendent of the laboratory, the chances of diminished strength were much slighter; but if it was, unfortunately for everybody, an easy place, the tinctures were macerated, pressed, or percolated, with a supreme disregard of everything except the production of a decent smell and colour, so that they would pass muster in the shop when filtered. Sometimes, too, in little places generally, proof spirit was a more economical preparation than it should have been. There was a convenient tradition that proof spirit meant equal parts of rectified spirit and water, and this belief has not altogether died out in the country yet. There are still some poor pharmacists who can scarcely get a living even with the aid of such little frauds as that, and who dare not venture to throw them entirely on one side and "try honesty." Of course, we are only describing extremes, and we refer to them that they may be removed. Still, at the best of times, and with the greatest care, a tincture is not at all an exactly defined preparation, as a great deal must depend, not only on the

manipulation and attention given to the processes by which, but also on the state of the drug from which, it is made. In the "British Pharmacopœia" there ought not to be much difficulty in obtaining uniform results, if care be taken in the selection of the ingredients. But most persons will admit that, whether by the use of superior processes or by the bestowal of a greater amount of care, homœopathic mother tinctures are very much more perfect specimens of the art of transferring the active principles from a bulky solid to an elegant and concentrated liquid form. One of their chief difficulties, however, in securing uniformity has been hitherto in the various degrees of moisture necessarily existing in fresh plants from which most of their tinctures are made. The Committee of the British Homœopathic Society, who are now preparing a homœopathic pharmacopœia, have adopted a plan which in future will obviate this difficulty. It is described more fully in the Almanac, but we think it also requires notice in this place. The Committee wish to have a uniform strength of one in ten, so that their mother tinctures may represent always the first decimal dilution of any substance, and thus correspond with the first decimal triturations. Now suppose one sample of a fresh plant contained 30 per cent., and another contained 40 per cent. of moisture, it is quite clear that a tincture made from a certain quantity of the former with the same proportion of spirit as was used with an equal quantity of the latter ingredient, would be just 10 per cent. stronger. It is therefore ordered that when the magna has been got ready for percolation a sample shall be weighed and dried, and the amount of loss correctly ascertained. Let this be, say, 40 per cent., and assuming proof spirit to be the menstruum, the quantity of that spirit is only to be ten times that of the nett or dry weight of the magna, and besides, the 40 per cent. of moisture already contained in this magna is to be taken into account, and reckoned as so much water in calculating the amount of rectified spirit which is necessary. A very little consideration will show how perfectly this plan answers the end desired, and we are inclined to believe that a few tinctures of fresh plants might advantageously be introduced into our own pharmacopœia, if the same precautions to secure unvarying results were also attended to.

W.

ON A NEW LIQUOR ERGOTÆ.

BY EDWARD LONG, M.R.C.S.*

IN some correspondence with Dr. Waring Curran, on therapeutics, principally in connection with pharmacy, he mentioned to me that he had been for a long time studying the actions and uses of ergot of rye, and had in practice experienced much inconvenience from being compelled to rely solely on the fresh powder made into infusion extemporaneously in the ordinary way, for want of any other reliable preparation of it. The same idea must have frequently occurred to every man in midwifery practice, as it must be unpleasant and undesirable for a physician to have to turn pharmacien at the patient's house, perhaps in the sick room, not to mention the delay, the more so as the female portion of the community have become quite familiar with the whole process, with the result that instead of ergot becoming thereby a popular remedy, it is quite the reverse. They don't like it any sense; it is disagreeable and nauseous to the taste, and they have a prejudice against it, from hearing that it is a very active, and it may be dangerous, drug in unskilful hands, no doubt exaggerating, after the manner of the sex, all they have heard.

* Communicated by the author.

It would, therefore, obviously be a great desideratum if a medical man could carry with him a condensed preparation of it, which would be neither objectionable in taste or appearance, and at the same time be perfectly reliable and keep well.

Being anxious to advance the cause of therapeutics ever so little, and at the same time gratify my friend, Dr. Waring Curran, I turned my attention to the subject, and trust the result will be satisfactory to the profession.

I believe the general feeling and experience is, that the only known reliable preparation of this substance, when its most characteristic effect on the uterus is required quickly and surely, is the extemporaneous infusion alluded to, which proves one thing, that water or an aqueous fluid is the best menstruum to extract its active principles. A spirituous tincture, also, is believed to have some virtue, and of the extract got by evaporating it the same may be said. The official Extract, (*Ergotæ Liquidum*.) of which much was expected, has disappointed many. The ethereal tincture and oil may be dismissed entirely—at least, I infer so—as they have fallen out of use in Dublin.

This is about all that is known of it, in point of fact; the published analyses do not throw any light on its active principle, and merely show that its efficacy depends on the mode of arrangement and combination of its elements, without defining what the resultant is, as we so frequently see in the analysis of organic substances. As these analyses have been made by very able chemists, it is not likely that any further efforts in that direction will add to our stock of knowledge.

I accordingly decided to act on the information supplied by medical observation and experience, taking the infusion as the best of all. Glycerine, I thought, would extract all that is soluble in water, and from its well-known preservative properties, retain it in an active state. I therefore digested ergot, freshly powdered, in glycerine for ten days, frequently shaking it. On straining this off, it was found to be of deep purplish colour, as thick as treacle nearly, and the marc quite soft and pulpy. This marc was then digested in spirit for ten days more, pressed off and filtered, the resulting tincture distilled off till it became of the consistency of syrup, and then added to the previous solution.

I intended weighing the residuum after each process of digestion, but through an oversight the spirit was added before I could test the solvent properties of each menstruum. I shall, however, do so carefully in future experiments.

The "fluid extract" formed of these combined solutions I find to be exactly equal to the volume of glycerine employed, and each drachm represents half a drachm of powdered ergot, and may be considered a dose.

By this process I believe all the active properties of ergot should be obtained in a very desirable form; the liquid is sweet, concentrated, and should be permanent. I would suggest that it be kept in graduated or drachm (5) bottles, to avoid measuring under unfavourable circumstances.

My object in writing this paper is, to place a preparation of an indispensable medicine in the hands of medical practitioners, with some confidence that it will not disappoint their reasonable expectations. Should it realise these expectations there will be little difficulty in making it quite palatable if there be not some objection to doing so, lest from its resemblance to treacle, accidents might happen.

Several medical friends to whom I communicated my idea, have tried and are trying it, but it is obvious that a more extended trial than any obtainable by such means is necessary to establish its therapeutic value.

As I don't practice I have nothing to add that would be of value. I have omitted to enter into any chemical

details, as they would be wearisome and little edifying to the majority of your readers, who have little time for them; but I have thought it right to let them know what they were invited to adopt, instead of appealing to them by advertisement, as is the fashion now-a-days.

CHLOROFORM ACCIDENTS.*

RECENT facts have been by no means encouraging as to any diminution in the dangers of anæsthetics. We have had deaths from chloroform almost every week. Nor have the zealous efforts of Dr. Richardson and others to provide us with a safer agent been rewarded by success. The bichloride of methylene, although as yet employed on but a very small scale, has had its victim, and has been so frequently the cause of very alarming symptoms, that most impartial observers of its effects have, we believe, come to the opinion that, whatever its other advantages, it is at least as dangerous as chloroform. We are not among those who think it well to try to explain away all occurrences of this kind, to impute them to unavoidable peculiarities in the patient, or to want of dexterity or care in the administrator. It is absurd to count, in the practice of surgery, on always having robust patients to deal with: nor is it wise to expect from ourselves more than a fair average of caution and skill. A plank bridge across the Thames might be perfectly safe to steady heads, and to those who had practised, but could scarcely be recommended for general use. Within the last few months, at one hospital alone, where the bichloride has been used, three different exhibitors have each had a very narrow escape of a death; and, in the face of such a fact, it avails but little for Dr. Richardson and Mr. Rendle to assert that they have met none such. Those who urge the general employment of dangerous remedies, on the plea that, in their own hands, they have hitherto proved safe, remind us of the quibble of the Scotch judge, who had never, he asserted, known any one die of drinking, though he had, he acknowledged, known many lost whilst learning the art. Bichloride of methylene may, possibly, be safe to those who have carefully learnt its use; but, if it be very dangerous to those of but little practice, it will not do to recommend it for general adoption.

So far as we have yet gone, it seems very probable that chloroform will hold its place with the British profession, as being the safest anæsthetic, which combines the recommendations of durable effect, rapidity of influence, suitability to all ages and states of health, freedom from after-consequences, and ease of administration. Indeed, we may suggest that it is, *a priori*, improbable that we shall ever find any agent which can rapidly extinguish almost all the functions of the nervous system, without any risk that it may now and then do more than we wish, and put into abeyance those we wish to spare, as well as the others. In this matter, speed is probably inseparable from danger.

It becomes, then, of the utmost consequence to try if the lamentable accidents which occasionally happen from chloroform can be reduced in number. In order to place ourselves fairly in the direction towards this most desirable end, we must recognise candidly the facts. We must admit first that, in almost all the cases in which death occurs during chloroform-sleep, it is caused by the anæsthetic; and that facts prove that it is impossible to predicate anything, as regards the individuals to whom such accidents are likely to happen. A "fatty heart" does very well to mention to a coroner's jury, and may possibly now and then afford some comfort to the unfortunate administrator; but, beyond

* From the *British Medical Journal*.

these purposes, we must not use it. Chloroform-deaths have occurred in sufficient numbers to young persons in unexceptionable health, whilst, on the other hand, such hosts of the feeble have passed safely through the ordeal, that it is impossible to believe that the lesions occasionally found have any definite connexion with the untoward event. Events seem to have proved, too, that we must abandon all trust in inhalers, and acknowledge what our Scotch *confères* have long been telling us—and enforcing, by an unusual run of immunity—that the simplest are the best. The use of the minim measure, as a means of security, must also be put quite aside. Those who have been accustomed to pour upon a handkerchief as much chloroform as seemed necessary, and then hold it closer or less close, according to judgment, must often have experienced melancholy amusement, in noting the piteous way in which, at an inquest, the exhibitor will inform the coroner that he had "given only forty-five minims by measurement." Such precision sounds very fairly, on such an occasion, but we fear that it conveys nothing to the patient's safety. This and some other fanciful precautions always look to us as if the exhibitor were making preparations for the witness-box, and remind us of the ready but impolite reply once made to a cross-examining counsel, who, asking the reason of his witness's minute accuracy as to distances, was told, "I thought some fool might ask me, and so I measured them." We are even in doubt whether the tenor of this remark does not also apply to the custom of holding the patient's pulse. To this, and to all other supposed precautions, the strong objection applies, that, unless really useful, they are better let alone, for the reason that they distract the attention from more important matters. If several surgeons are present there is no kind of objection to the rule that one of them should take the patient's wrist; but it is somewhat different if that task is to fall to the exhibitor. It is not possible for the mind to give attention to many different things at once; and, if you are scrupulously watching the patient's face and breathing, you will often find yourself holding the pulse, it is true, but paying no real attention to the force of its beats. That the patient's countenance and breath-movement give more important information than his wrist-pulse is tolerably certain. In saying this, however, we would guard ourselves most carefully against implying that the state of the circulation is to be neglected. What we mean is, that the state of the circulating forces is more accurately estimated by the appearance of the sleeper's cheeks, lips, and eyes, than by the force of the radial pulse.

Another point which must be kept constantly in mind by chloroform-administrators is, that no case is safe. It is just when danger is the least thought of that it comes. To the most healthy person the induction of profound anaesthesia is a state most on the borderland of death. Your design is to take a man to the edge of a precipice, and not let him drop over. The task will demand all your skill; and the fact that you have done it safely a thousand times does not make it certain that you may not yet have an accident. It is obvious that the administrator should give his whole attention to his task—should abstain from conversation, and from any attempt to observe the operation. From this it follows that it is very desirable, when possible, to have a qualified surgeon present, to whom this duty, and this alone, is entrusted. Under many circumstances such may not be possible; but it is none the less to be recommended. The large number of accidents which have occurred in private practice, and often during preparation for trivial operations, makes it probable that in many the patient ran additional risk, owing to a short-handed staff. In making this remark, we by no means wish to ignore the fact that

many accidents have happened in hospitals, with plenty of help at hand, and have occurred to experienced chloroformists. Want of assistants is, however, attended by danger in two ways: first, that the patient may be inefficiently watched; and, secondly, that, in case of accident, the means of resuscitation may not be properly attended to. We half suspect that the latter point is the more influential. In hospital practice many patients are saved after the occurrence of most alarming conditions, and even after apparent death. Not a few of these cases, under other less favourable circumstances, would probably end otherwise.

Much discussion has taken place as to the precise way in which chloroform kills, and many experiments have been performed on the lower animals. The main debate has been as to whether the circulation or the breathing is the function first to fail. As the result of considerable observation in operating theatres, we may venture to record our conviction that, in the human subject, the heart is the organ most frequently endangered. There are chiefly two symptoms of danger. One marks impediment to respiration, and is known by stertor and lividity of face; the other, failure of the heart's action, and is denoted by deathly pallor. The latter, in some cases, follows on the first; indeed, it almost always does so, if the patient dies. In many cases, however, the latter—extreme pallor—occurs without any preceding stage of lividity. The cases marked by stertor and lividity are always hopeful. You open the mouth, pull forward the tongue, and very often the danger is over. In other cases you succeed by artificial respiration. The cases in which deathlike paleness denotes sudden cardiac syncope are much less hopeful. In some of these cases gasping inspirations may continue many minutes after the heart's action has ended, and may even sometimes be renewed after long intermissions. In several cases, in which yet death ultimately ensued, inspiratory efforts occurred ten minutes or more after the first failure of the heart, and after artificial respiration had been begun.

The plan of treatment in cases in which impediment to respiration occurs, is, as we have just hinted, obvious enough; that for heart-failure is less easy. The prevention of the latter is perhaps what should mainly claim attention. Its treatment should consist, in addition to efficient artificial respiration, in the employment of means to rouse the nervous system, and thus, in an indirect manner, re-excite the heart. The patient's surface—limbs, trunk, and face—should be "flipped" with the wet end of a towel most vigorously, and in the manner best calculated to cause sharp pain. This should be begun instantly that alarm is felt; and its importance can scarcely be exaggerated. Many a patient, under its influence, is roused at once; inspiratory sobs occur, and by degrees the pulse returns. At the same time brandy should be introduced into the rectum. A grand point is, not to desist on slight evidences of recovery, but to persevere until no doubt remains. Several patients have relapsed, and died, after hopeful signs of returning life had occurred, and had induced the operators to remit their exertions. The precaution which seems chiefly reliable for the prevention of heart-failure is the administration of an alcoholic stimulant before beginning. Brandy is best for this purpose, and should be given ten minutes or a quarter of an hour before the inhalation. It probably has much the same effect in sustaining the heart that the mixture of ether with the chloroform is believed to exert, whilst it is more convenient in practice.

Experience seems to have shown the following statements to be probably near the truth.

Very young children take chloroform well, and in them accidents are most rare.

Children from the age of eight and upwards are as liable to accidents as those older.

Very aged persons very rarely die from chloroform; but, respecting these, the data are perhaps not large enough.

Those accustomed to the free use of stimulants take chloroform slowly, succumb to it with difficulty, rally early, and very seldom pass into a state of danger.

There is no special risk in cases in which the heart is known to be diseased.

Patients who are in a state of terror or extreme anxiety at the time of inhalation are in great risk of sudden action of the anæsthetic, and collapse. In such, the administration of brandy should never be omitted.

Very hot weather renders patients more susceptible.

Debilitating influences generally, but especially such as act mainly on the nervous system, increase the risk. It is possible that in this way the prevalence of epidemic catarrh (approaching perhaps to influenza) may make a large proportion of the community bad subjects for chloroform, and may thus bring about a group of accidents.

The profession is all but unanimous in the belief that there are no special circumstances in the health of the patient which forbid the use of chloroform, when rendered necessary by circumstances. In other words, the risk from it never equals that from the shock of a painful operation. "A case for operation is a case for chloroform." At the same time, it is needless to point out that, for all minor operations in which it offers no special advantage beyond the avoidance of short or trivial pain, it is wise to abstain from its use.

So important does this subject seem at the present juncture that we have ventured to draw up memoranda upon it, which will be given in our next number, and which we purpose to have printed off in the form of slips, for the supply of those of our readers who may wish for them. Our aim has been to make these hints concise and definite, and to omit everything not necessary. It is quite possible that some lives have been lost through want of due preparation for emergencies, and some through the over zealous attempt to employ many means of resuscitation at once. This latter remark applies especially to the use of galvanism, which has often been allowed to interrupt artificial respiration, probably to the great detriment of the patient.

The following memoranda on the administration of chloroform have been drawn up in the hope that they may be useful in the prevention of accidents:—

THE ADMINISTRATION OF CHLOROFORM.

Preliminaries.

1. Unless very feeble, the patient should fast for three hours before the inhalation.
2. Ten minutes before the inhalation, a dose of brandy should be given in water—a teaspoonful to a child, one or two tablespoonfuls to an adult.
3. The patient should, whenever convenient, be wholly undressed, and invariably everything tight about the chest or neck should be removed.
4. If possible, let the patient be in the recumbent posture, and on his back. Let the chest and neck be well exposed. Whatever form of apparatus be used (a piece of lint, a handkerchief, or Skinner's inhaler, are perhaps among the best), you may begin boldly. There is no risk with the first inhalations; and the patient may be instructed "to draw full breaths." So soon as any effect is manifest, you must be more cautious. Watch carefully the respiratory movements, and the colour of the cheeks, lips, and eyes. If the patient struggle much, proceed with increased caution.

Signs of Danger.

Lividity of Face.—Remove the chloroform, and let the patient have air. Open the mouth and draw out the tongue.

Stertorous Respiration.—Stop the chloroform, open the mouth, draw forward the tongue, and watch carefully.

Irregular Gasping Respiration.—Stop the chloroform, dash cold water on the face, and flip with the towel.

Death-like Pallor.—This, the most dangerous sign of all, must be met without a moment's loss of time. Flip with the wet towel on the cheeks, chest, abdomen, etc. Open the mouth, and if, as is usual, breathing has ceased, begin artificial respiration at once. With outspread palms, press the front of the chest forcibly down, whilst an assistant, at the same time, presses the abdomen. Make these movements not oftener than fifteen times in the minute. Air should be heard to enter the trachea. Whilst this is being done, let assistants continue most vigorously to flip the skin in all accessible positions—it cannot be done too much. If the collapse continue, let an ounce of brandy be injected into the rectum. Do not remit the artificial respiration until the patient is quite rallied. If the collapse persist, the efforts at rallying should be persevered with for an hour at least. If a large catheter be at hand, it may be well to introduce it into the trachea, and inflate the lungs by the mouth. Remember that irregular inspiratory efforts may occur long after death in all other respects has apparently taken place. Do not be deceived by them, but continue your efforts.

Remarks.

The plan of artificial respiration recommended is, we believe, all things considered, the most convenient. The catheter in the trachea, is, when practicable, the most effectual plan. Its introduction is not difficult. If the artificial inspirations be made too rapidly, they defeat their own object; nor should they be too forcibly made. If it be needful to continue them more than a few minutes, the operator will find it convenient to kneel astride the patient's trunk.

The administrator ought always to have with him brandy, an enema-syringe, and a large flexible catheter. He ought always, when convenient, to require his patient to be undressed, since it may be very desirable to have the surface accessible.

UNQUALIFIED MEDICAL PRACTICE.

WE extract the following article from the *Lancet*:—
"We are glad that the results of unqualified practice are coming into notice, even if it be in the Coroner's Court. We are especially glad of this when the unqualified practice assumes all the appearance, and shelters itself under the wing, of licensed practice. He is a bold druggist who prescribes for serious disease, but he is an uncandid one who not only does this, but manages to have a doctor's name and title paraded on his shop-front, so that the poor, who are attracted by the title, think that in consulting 'Mr. Smith,' they are having the opinion of 'Dr. Rumboll.' Such was the case with Augusta Clay's mother, who took her child to 'Mr. Smith,' thinking he was a doctor. When the child got worse, the chemist told her to take the patient to 'Dr. Rumboll,' whom she thought she had been consulting all the time. Dr. Rumboll, on application, gave the child medicines for ninespence, but refused to see it without receiving eighteenpence more. The mother, being unable to pay this, then applied to the parish doctor, who said, at the inquest, that if the child had been

properly treated by a medical man at first, it might have recovered. The Coroner said this was the third case in which 'Mr. Smith and Dr. Rumboll' had been engaged. 'The evidence proved that when a child was in the jaws of death, Mr. Smith sent it to Dr. Rumboll, who was in the habit of granting a certificate.' 'Dr. Rumboll' should be ashamed of such a connection with a chemist, or any person unqualified to practice. We will go further, and say that for a medical practitioner to give the sanction of his name and title to a chemist, and to fill up the death-certificates of cases that might have been saved if they had come under proper treatment early (as in this case), seems to us a most culpable use of a medical qualification. We should like to see this use of his titles by a medical man made criminal in any amendment of the Medical Act, and expose him to having his name disregistered. Another inquest was held by Mr. Humphreys on the body of an infant whose mother had taken it to a chemist, whose assistant prescribed for the child, and gave it physic, for which he charged a shilling a bottle. When the child died he demanded two shillings for a certificate of the cause of death; and at the inquest he admitted that he might have said he was a doctor in a 'flurry.' He denied having asked two shillings for the certificate. He admitted that he had no right to give a certificate, though he often did so.

"It is high time that the law made a little clearer the criminality of chemists who discharge medical duties under false pretences and without medical qualifications; and the criminality of medical men who give the use of their names to chemists and other unqualified persons, and forget their dignity far enough to sign certificates of death in cases that have been treated by such persons. In the interest of the poor such a connexion between chemists and practitioners should be prohibited. The poor have little to spend on advice; and the little they get should either be good, or, at least, should not pretend to be what it is not. We fear there is another lesson in such cases as the above—viz., that the very poor cannot pay for advice and medicines. But that is no reason why they should be deceived."

THE LANCET ON THE PHARMACY ACT.

SEVERAL letters, says the *Lancet*, have recently appeared in the daily press from members of the pharmaceutical body, complaining of the present working of the Pharmacy Act, simply because it does not tend to secure the particular interests of individuals. One correspondent is angry because it does not restrain his neighbour, a grocer, from selling carbonate of soda and other similar simples, and because it does not protect him against such a procedure.

The Pharmacy Act is a piece of legislation intended to benefit the public primarily, and also to raise the status of the chemist himself, so that the public might have reason to trust him with greater confidence; and this must ultimately lead to the forsaking of the grocer or the huckster for all that is needed in the way of drugs in favour of the duly-qualified chemist, even as regards the most commonplace wants. In proportion, however, as chemists are guided by such utter self-seeking as that which influences some of the correspondents to whom we refer, is the consummation of this desirable result retarded. Let them be sure that the better education and training which recent pharmaceutical legislation secures for the future will rapidly tell in the improvement of their position, and in regulating as they would desire their own trade interests. And whilst we are upon the subject of the Pharmacy Act, let us remark that no legislation can absolutely prevent accident or the misuse of poisons. The restrictions as to the sale of poisons

could not frustrate the evil purposes of any respectable man or woman who is known personally to any seller of drugs. If, as suggested, no poison is to be sold save after prescription by a medical man, how can that prevent the criminality of the person who by such means obtains possession of a deadly drug? What the Pharmacy Act has done, and we speak on good authority, is to considerably diminish in some districts the sale of remedies into whose composition opium and the like enter, by little shopkeepers, hucksters, and others. The law is, of course, still frequently evaded; but some impression for good is being made on the dissemination amongst the vicious and the ignorant of dangerous remedies. The wholesale houses who supply small shopkeepers can best tell to what extent this benefit has accrued. Lastly, there is a very general opinion gaining ground amongst those who were inclined to grumble at the institution of a stiff examination as the portal through which all are to enter the pharmaceutical calling, that it is bearing ample and satisfactory fruit.

TREATMENT OF INDIGESTION.

THE following notes on the Treatment of Functional Indigestion are contributed to the *Medical and Surgical Reporter* of America by Dr. G. H. Napheys:—

WILLIAM AITKEN, M.D., EDIN.

| | | |
|---|--------------------|-------------|
| R | Sodæ bicarbonatis, | gr. xv. |
| | Potassæ nitratis, | gr. iij. M. |

For one powder, to be taken two or three times a day, in those forms of indigestion marked by excessive acidity and heartburn. At the same time, free action from the liver and bowels must be sustained by occasional small doses of blue pill or podophyllin, combined with extract of colocynth and of henbane, while exercise and diet are duly attended to.

| | | |
|---|---------------------|------------|
| R | Ammonis carbonatis, | gr. j. |
| | Extracti gentianæ, | gr. ij. M. |

For one pill, ter die, in weakened digestion from over-fatigue.

| | | |
|---|-----------------------------------|---------|
| R | Extracti nucis vomicæ, | |
| | Ferri sulphatis, aa | gr. ½. |
| | Extracti colocynthidis compositi, | gr. iv. |

This combination taken early in the morning generally induces gentle action of the bowels.

In prescribing the mineral acids, our author calls attention to the following general rule, stated by Dr. BENGE JONES, namely, that the influence of sulphuric acid is astringent, while that of hydrochloric acid promotes digestion, and of nitric acid sedation.

THOMAS KING CHAMBERS, M.D., CONSULTING PHYSICIAN AND LECTURER ON THE PRACTICE OF MEDICINE AT ST. MARY'S HOSPITAL, LONDON.

| | | |
|---|----------------------------|-------|
| R | Acidi hydrocyanici diluti, | miv. |
| | Infusi gentianæ, | f3ss. |

For one dose, ter die, in heartburn due to over-sensitiveness.

| | | |
|---|---------------------------|--------|
| R | Zinci oxidi, | |
| | Pilulæ aloæ et myrrhæ, aa | 5iiss. |

Divide into twenty pills; one ter die, in the nervous trembling, indigestion of food, and vomiting, arising from indulgence in spirit-drinking between meals, and in the forenoon.

J. M. DA COSTA, M.D.

| | | |
|---|------------------------|-------|
| R | Acidi nitro-muriatici, | f5ij. |
| | Vini pepsini, | f3ij. |

A teaspoonful three times a day, before or after each meal. In functional indigestion, owing to want of proper

secretion of gastric juice. When there is constipation, add also

| | | |
|-------------------|--------|----|
| R Pulveris rhei, | ℥j. | |
| Quinis sulphatis, | gr. x. | M. |

Divide into ten pills, one to be taken at night. If this be not sufficient to produce a laxative effect, take one night and morning. Meat diet almost exclusively, avoiding starchy substances.

THOMAS HAWKES TANNER, M.D., F.L.S. LONDON, ETC.

| | | |
|-------------------------------|-------|----|
| Acidi nitro-muriatici diluti, | ℥ij. | |
| Acidi hydrocyanici diluti, | ℥xxv. | |
| Tincture arnicæ, | ℥ij. | |
| Tinct. gentiænæ composite, | ℥ij. | |
| Infusi sennæ, q. s. ad. | ℥ij. | M. |

A tablespoonful two or three times daily, in dyspepsia, with sluggish action of the liver. The efficacy of this prescription may often be increased by giving with each dose the following pill:—

| | | |
|-----------------------|---------------|----|
| R Zinci sulphatis, | gr. j-ij. | |
| Extracti gentiænæ, | gr. iv. | |
| R Quinis sulphatis, | gr. xij. | |
| Pulveris ipecacuanhæ, | gr. xij-xxiv. | |
| Extracti gentiænæ, | gr. xxiv. | M. |

Divide into twelve pills, and order one to be taken every day at dinner. An excellent remedy in cases of slow digestion.

| | | |
|-------------------|---------------|--|
| R Ferri redacti, | gr. xxxvi-5j. | |
| Pepsinæ, | gr. xxxvj. | |
| Zinci phosphatis, | gr. xvij. | |
| Glycerinæ, | q. s. | |

Divide into twenty-four pills, silver them, and order two to be taken every day at dinner. In anæmia, etc., with weakness of the digestive organs.

THE ATOMIC CONTROVERSY.*

IT is one of the most remarkable circumstances in the history of men, that they should in all times have sought the solution of human problems in the heavens rather than upon the earth. Sixty years ago, a memorable instance of this truth occurred, when Dalton borrowed from the stars an explanation of the fundamental phenomena of chemical combination. Carbon and oxygen unite in a certain proportion to form "carbonic acid;" and this proportion is found to be invariable, no matter from what source the compound may have been prepared. But carbon and oxygen form one other combination, namely, "carbonic oxide"—the gas whose delicate blue flame we often see in our fires. Carbonic oxide may be obtained from many sources; but, like carbonic acid, its composition is always exactly the same. These two bodies, then, illustrate the law of *Definite Proportions*. But Dalton went a step further. He found that, for the same weight of carbon, the amount of oxygen in "carbonic acid" was double that which exists in carbonic oxide. Several similar instances were found of two elements forming compounds in which, while the weight of the one remained constant, the other doubled, trebled, or quadrupled itself. Hence the law of *Multiple Proportions*. The question was—in fact, the question is—how to account for these laws. Dalton soon persuaded himself that matter was made up of very small particles or *minima nature*, not by any possibility to be reduced to a smaller magnitude. Matter could not be divisible without limit; there must be a barrier somewhere. No doubt, as a chemist, he would have rejected the famous couplet—

"Big fleas have little fleas, upon their backs, to bite 'em;
And little fleas have smaller fleas, and so ad infinitum."

* From Macmillan's new journal, *Nature*.

"Let the divisions be ever so minute," he said, "the number of particles must be finite; just as in a given space of the universe, the number of stars and planets cannot be infinite. We might as well attempt to introduce a new planet into the solar system, or to annihilate one already in existence, as to create or destroy a particle of hydrogen." All substances, then, are composed of atoms; and these attract each other, but at the same time keep their distance, just as is the case with the heavenly bodies. The atoms of one compound do not resemble those of another in weight, or size, or mutually gravitating power. But as they are indivisible, it is between them that we must conceive all chemical action to take place; and an atom of any particular kind must always have the same weight. The atom of carbon weighs 5; the atom of oxygen weighs 7. Carbonic acid, containing one of each, must therefore be invariably constituted of 5 carbon, and 7 oxygen: carbonic acid must in like manner contain 5 carbon and 14 oxygen. Here, then, Dalton not only states that he has accounted for the two laws we have mentioned by making a single assumption; but he evidently intends his theory to be used as a criterion or control in all future analytical results, and already views it as the birth-place of chemical enterprise.

Such, and so great, was the atomic theory of Dalton; founded, certainly, on erroneous numbers, but containing in itself the germ of their correction; aspiring to the command in innumerable conquests, and setting itself for the rise or fall of the chemical spirit.

It is hardly necessary to make any detailed review of the history of the atomic theory. Berzelius made it a starting-point for researches which, on the whole, have been unsurpassed in their practical importance, and engrafted upon it his celebrated electrical doctrine. Davy and Faraday refused to admit it; Laurent and Gerhardt accepted it doubtfully, or in a much modified form. Henry declared that it did not rest on an inductive basis. There can be no doubt, however, that the atomic theory has been accepted by the majority of chemists, as may be seen on even a cursory inspection of the current literature of their science. Our present intention is to give such a summary of the atomic question as may be serviceable to those who take an interest in the discussion at the Chemical Society on Thursday last.

The modern supporters of the atomic theory agree with Dalton in the fundamental suppositions we have given above; but assert that they have a much stronger case. The phenomena of gaseous combination and specific heat have indeed changed the numerical aspect of the theory, but not its substance. The simplicity of all the results we have accumulated with respect to combining proportions is itself a great argument for the existence of atoms. They all, for example, have the same capacity for heat; they all, when in the gaseous state, have a volume which is an even multiple of that of one part by weight of hydrogen. But bodies in the free or uncombined state—such, in fact, as we see them—more commonly consist of many clusters of atoms (*molecules*) than of simple atoms. These molecules are determined by the fact that when in the gaseous state they all have the same volume. Again, select a series of chemical equations, in which water is formed, and eliminate between them so as to obtain the smallest proportion of water, taking part in the transformations they represent. It will be found that the number is 18; which necessarily involves the supposition that the oxygen (16) in water (18) is an indivisible quantity. To put this last point another way: hydrochloric acid, if treated with soda, no matter in what amount, only forms one compound (common salt). Now

we know that the action in this case consists in the exchange of hydrogen for sodium. But if hydrogen were infinitely divisible, we ought to be able to effect an inexhaustible number of such exchanges, and produce an interminable variety of compounds of hydrogen, sodium, and chlorine; hydrochloric acid being the limit on the one side, and common salt (sodic chloride) terminating the other. No such phenomenon occurs; and, since matter must be infinitely or finitely divisible, and has been thus proved not to be the former, it must be the latter. Atoms therefore, really exist; and chemical combination is inconsistent with any other supposition. Those who hold the contrary opinion are bound to produce an alternative theory, which shall explain the facts in some better way.

Now let us hear the plaintiff in reply.

The atomic theory has undoubtedly been of great service to science, since the laws of definite and multiple proportions would probably not have received the attention they deserve, but for being stated in terms of that theory. Yet we must discriminate between these laws, which are the simple expression of experimental facts, and the assumption of atoms, which preceded them historically, and therefore has no necessary connection with them. For it was the Greek atomic theory which Dalton revived. Nor has any substance yet been produced by the atomists, which we cannot find means to divide. If, moreover, we have no alternative but to admit the infinite divisibility of matter, even that is consistent with the simple ratios in which bodies combine; for two or more infinities may have a finite ratio. Therefore, the observed simplicity, if used as an argument, cuts both ways. Possibly we are mistaken in connecting the ideas of matter and division at all; at any rate, the connection has never been justified by the opposite side. Again, admitting the argument based on the formation of common salt, the atomic theory does not tell us why only one-third of the hydrogen in tartaric acid can be exchanged for sodium; why, indeed, only a fraction of the hydrogen in most organic substances can be so exchanged. Yet, the explanation of the one fact, when discovered, will evidently include that of the other. On the whole, it appears that the atomic theory demands from us as a belief in the existence of a limit to division. No such limit has been exhibited to our senses; and the facts themselves do not raise the idea of a limit, which Dalton really borrowed from philosophy. The apparent simplicity of chemical union we do not profess to explain, but to be waiting for any experimental interpretation that may arise. The atomists, in bringing forward their theory, are bound to establish it, and with them lies the *onus probandi*.

The above are a few broad outlines of the existing aspect of atomic controversy, and may somewhat assist in forming an estimate of it. The general theoretical tone of the discussion last Thursday must have surprised most who were present. Our own position is necessarily an impartial one; but it will probably be agreed that between the contending parties there is a gulf, deeper and wider than at first appears, and perhaps unprovided with a bridge.

ON THE SALTS OF CONIA.*

BY GEORGE C. CLOSE.

QUERY.—Conia has been recommended as a therapeutic agent, but is liable to alteration from atmospheric oxygen. As the salts of conia appear to be permanent and are odourless, why may not some of these be substituted for the alkaloid?

THE assertion in the query that the salts of conia appear to be permanent is contrary, I believe, to the authorities on the subject, except with regard to the muriate, which

Professor Wertheim asserts to be crystallizable and not in the least deliquescent. The method which he suggests for making the muriate is the combining the vapours of the two substances directly. This method, to be successful, would require a larger quantity of the conia than I could afford to use, as the cost is eight dollars for what purports to be an ounce of the article.

I succeeded in making a crystallized muriate by dissolving 30 grs. of the conia in two fluidrachms of dilute muriatic acid, previously diluted again with its bulk of water, and evaporating the solution by means of a water bath.

Heat is developed while dissolving the conia, and white vapours are evolved at first, which, even when the mixture is made in a well corked bottle, will sometimes escape partially.

Some of the crystals obtained by the evaporation of the mixture were exposed for several weeks in an open capsula. They became alternately wet and dry, according to the state of the weather. From this I infer that they are hygroscopic, but not deliquescent.

I swallowed half a grain of the crystals which had been so exposed (dissolved in water), without apparent effect. I then took one grain, which produced the characteristic effects of the conia to such an unpleasant degree that I should be loth to repeat the dose. I am far less susceptible to the action of conia than many persons. This seems to show that the salt will retain its medicinal properties after several weeks' exposure.

I did not succeed in obtaining a crystallizable salt with sulphuric, citric, or oxalic acids.

The conia used was made by Merk. This appears to be the only kind in market. Its quality is not uniform, as in some instances it will not all dissolve in dilute acid, but an oily residue is left.

I presume the muriate of conia might be made directly from the fresh plant or fruit at less expense than the conia, and have no doubt but that it would be far more convenient and reliable for medicinal use than the latter.

I do not claim to have exhausted the subject of the query, and shall be very glad if some member who has more skill, more apparatus, and more money will take it up and investigate it more thoroughly than I have done.

I present a sample of muriate of conia, probably not quite pure, but sufficiently so for practical purposes.



The Chemists' and Druggists' Almanac, 1870. London: Colonial-buildings, Cannon-street, E.C.

OUR remarks upon this work must be cold and formal, as the slightest indication of parental fondness would be inconsistent with the impartiality which ought to characterize journalism. We see our child "grown out of knowledge," and quite able to take care of itself; but we must smother our feelings, and receive our offspring as a stranger. Our reserve, however, may imply more than we wish, unless we explain in a few words the relation existing between ourselves and the new comer. The Annual saw the light in our office, and bears our name; but it has been reared by an independent nurse, who would probably object to be mistaken for the editor of a mere monthly publication. It never got much from us besides our blessing and a few letters of recommendation, and we are not responsible for its character or appearance. As it is, the child is a credit to us; but had we attempted to take care of it, we should, most likely, have spoiled it. So much for family matters.

* Proceedings of American Pharmaceutical Association.

We now commence our easy task of noticing the peculiarities of the Almanac with a clear conscience.

We find between the covers of this book more than a hundred pages of print, without counting those devoted to advertisements, and the greater portion of this mass of matter affords the special information which is likely to prove useful to a pharmacist in his shop, his laboratory, or his study. Passing over tables of stamps, taxes, licences, patents, and foreign moneys, we come to the Calendar, which has been compiled expressly for the work by Mr. J. C. Brough. Instead of the usual references to battles and political events, we find the dates of scientific meetings, useful trade memoranda, and notices of the deaths of eminent pharmacologists, chemists, and botanists, with ample particulars respecting the moon's changes, and the sun's rising and setting. In connection with the Calendar, we have Botanical Notes, giving information respecting the collection and flowering of indigenous medicinal plants; explanatory notes on the principal articles of the Calendar; notices of the eclipses of the year; and useful data for chemical calculations. A blank page is left for private memoranda opposite the table of days in each month.

Following the Calendar is an important original communication from Mr. Daniel Hanbury, F.R.S., entitled "The Price of Medicines." The author discusses the various considerations that control the money-value of medicines compounded according to prescription, and contends that neither the safety of the public nor the well-being of pharmacy can be advanced by such a reduction of the price of medicines as the co-operative system would tend to introduce.

Professor Attfield, Ph.D., F.C.S., contributes "Plain Directions for Testing Urine for Common Abnormal Substances," which will enable pharmacists to afford medical practitioners the chemical assistance they frequently need. The amount of information that may be derived from Dr. Attfield's two pages of print is very great.

An article entitled "Mutual Help," by Mr. G. F. Schacht, of Clifton, will set men thinking and working in many places, if earnestness has the power we believe it has. The author aims at persuading his fellow-pharmacists to help each other in organising science classes in which assistants and apprentices may obtain the knowledge required for passing the pharmaceutical examinations.

Under the head of "English and Foreign Formulae," Mr. Joseph Ince, F.L.S., F.C.S., gives the cream of his experience in practical pharmacy. He prints many formulae from the recent Austrian Pharmacopoeia with practical annotations, and appends about sixty English formulae, assuring the reader "that they are not home-made, and that none are presented which were not originally issued under the highest authority." Every purchaser of the Almanac will admit that this collection of formulae is a precious acquisition.

A "Record of Pharmacy," consisting of abstracts of numerous important papers relating to pharmacy, is another useful contribution.

The remaining sections of the work can only be briefly noticed here. We have an abstract of the Pharmacy Act, 1868; a sketch of the history of the year now drawing to a close; Business Maxims; a series of recipes used in the Treatment of Headaches; an important communication on Homoeopathic Tinctures; Hints to Students; an outline of the Bankruptcy Laws; and about fifteen pages of useful tables and commercial notes.

The contents even now are not all told. On page 97, a "Trade-Mark Register" commences, and pages 102 to 112 are occupied with a Directory, which includes the addresses

of scientific societies, hospitals, the leading medical men, wholesale and export druggists, drysalts, druggists' sundriesmen, wholesale perfumers, patent medicine warehouses, vendors of specialities, manufacturing chemists, and wholesale homoeopathic chemists.

Outlines of Chemistry; or, Brief Notes of Chemical Facts. By WILLIAM ODLING, M.B., F.R.S., etc. 8vo, pp. 468. London: Longmans, Green, and Co.

THE student of chemistry who strives to obtain a record of the facts and arguments placed before him in the lecture-room may be easily deluded by the belief that his written notes are intellectual acquisitions. He fills page after page with formulae and figures, but in grasping at the shadow of knowledge he probably loses the substance. While he should be learning, he is merely collecting materials with which he vainly imagines he can reproduce the lesson at any future time. Notes, however, seldom recall the lucid explanations of the lecturer, and the student finds, too late, that although he has bricks in plenty, the mortar needed for binding them together is wanting. Many eminent teachers have condemned the practice of taking notes, and we agree with them in thinking that the light which ought to reach the mind of the student is often intercepted by his note-book.

Dr. Odling has just produced a book which will convert many habitual writers of notes into attentive listeners. It consists substantially of the notes from which he has lectured for the last seven years at St. Bartholomew's Hospital, and it gives a connected outline of the leading facts of chemistry in their relations to each other. It is essentially descriptive in character; and aims at calling to mind, in as few words as possible, the ascertained origins, properties, and metamorphoses of the chemical substances to which it refers. The author states that it is not intended for study by itself; but as a companion to the teachings of the lecture-room, and as an aid to the appreciation of more complete works, such as Miller's "Elements" and Watts's "Dictionary." To bring a vast collection of facts into the smallest possible compass, Dr. Odling has adopted condensed forms of expression, which contrast strangely with the easy-flowing sentences of his "Manual." But though we miss the author's elegant style in this book, the systematic arrangement of facts, and the suggestive collation of formulae constantly remind us that we are examining the work of one of the clearest thinkers of our day. With such a book for reference, the chemical student can safely discontinue the practice of taking full notes of lectures. Any one page out of the 468 to which the "Outlines of Chemistry" extend might be extracted to show the condensed nature of the contents, but our readers must study the work to appreciate properly its systematic arrangement. We quote the notes on metallic mercury:—

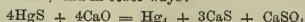
MERCURY.

Mercury sometimes found native, disseminated through its principal ore, the sulphide HgS , or cinnabar. Its occurrence also, in forms of mercurous chloride, mercuric iodide, selenide, etc., and as silver amalgam.

Metal extracted by the process of roasting or combustion in peculiarly constructed furnaces, and resultant mercury condensed either in flues, or in a series of short clay cylinders called *abudels*, fitting into one another so as to form continuous tubes, and lying on an inclined plane or *aludel-bed*:



Mercury sometimes obtained by distilling cinnabar with lime in iron retorts; and in other ways:



Commercial mercury usually very pure. Purification of foul mercury by its exposure to air under oil of vitriol; or

by its agitation with dilute nitric acid containing some nitrate of mercury in solution; or most efficiently by its redistillation, preferably in current of super-heated steam.

A freely mobile, highly conductive, metallic liquid, of sp. gr. 13.6, forming spherical globules. Its brilliancy and greyish-white colour. Its solidification at -40° , into a soft malleable metal, crystallising in regular octahedrons. Its ebullition at 350° into a colourless vapour, of sp. gr. 100. Its volatility at all temperatures above 10° , and to considerable degree in current of ordinary steam. Uniform dilatation of mercury by heat, to extent of 1.55, between 0° and 100° .

Mercury reduced to the state of minute non-adherent globules by agitation with certain solutions, as of mercurous nitrate; and converted into non-lustrous powder or paste by being rubbed up with chalk, grease, etc. Its precipitation, in yet finer state of division, from solution of corrosive sublimate, for instance, by stannous chloride or other reducing agent.

Direct combination of mercury at ordinary temperature with chlorine, bromine, and, especially on trituration, with iodine and sulphur. Its unoxidisability by mere exposure to air and moisture, but gradual absorption of oxygen at temperature of 300° or so, to form mercuric oxide. Its indifference even to boiling hydrochloric acid; but reaction with hydriodic and sulphuric acids to effect liberation of hydrogen. Its ready solubility in nitric acid to form either mercurous or mercuric nitrate, with reduction of a portion of the acid to the state of nitric oxide. Its conversion, by sulphuric acid, at a gentle heat, into mercuric sulphate, with evolution of sulphurous anhydride.

Solution, real or apparent, of different metals in mercury. Separation of semi-solid amalgams, by forcibly filtering off the excess of mercury through leather, etc. Production of definite compounds as Ag_2Hg_3 , Cu_2Hg , etc., by subjecting the crude amalgams to powerful pressure. Combination of mercury with basyulous metals attended by a considerable extrication of heat.

Formation by mercury of two distinct series of compounds; namely, mercuric compounds, typified by corrosive sublimate or mercuric chloride HgCl_2 ; and mercurous compounds, typified by calomel or mercurous chloride HgCl or Hg_2Cl_2 .

The People's Guide to the New Law of Bankruptcy. London: Houlston and Wright.

In a pamphlet of twenty pages, we have here a most business-like summary of the new laws relating to bankruptcy. The pamphlet is written so that everyone can understand it, printed so that anyone can readily refer to any part of it, and sold at fourpence, so that everyone can have it by him. Let him be very thankful if he never has occasion to look into it. The following still more condensed summary of the new law has been drawn up by the same author, apparently for the especial use of the press; but it seems so useful to all business men that we give it entire:—

- (1.) It will come into operation on 1st January, 1870.
- (2.) It will no longer be possible for dishonest debtors to bid their creditors defiance by threatening to make themselves bankrupt, which in future will not be permitted.
- (3.) It will enable small creditors to combine together and make a person indebted to them bankrupt.
- (4.) It removes the "red tape" of OFFICIAL ASSIGNEES, and the present costly machinery for realizing the property of a bankrupt, substituting a cheap and direct system through the creditors themselves, which must tend to the great advantage of all concerned.
- (5.) It compels debtors to pay a substantial dividend! to their creditors, under penalty of being deprived for a long period of years of their future earnings and property.
- (6.) It renders fraudulent settlements of property on family or friends no longer possible.
- (7.) It renders members of either House of the Legislature amenable to the Law of Bankruptcy.

(Lastly.) *THE DEBTORS' ACT of 1869* (a pendant to the Bankruptcy Act) abolishes imprisonment for debt in the case of the really unfortunate debtor, but inflicts on the fraudulent and dishonest just and exemplary punishment, by imprisonment for long periods, with or without hard labour.

Post Office Directory of Chemists and Druggists. London: Kelly & Co.

We are bound to regard it as a compliment to the trade we serve that Messrs. Kelly should have made a 'Directory of Chemists and Druggists' the first volume of what will probably become, in their hands, a series of trade directories for England. Such a work has been frequently suggested before, and it is at least satisfactory that now that it has been seriously undertaken, it has been by a firm with such opportunities and experience as Messrs. Kelly possess, and which no one can command like them, in the way of directory compilation.

There is but little to criticise in a directory. An Irishman who was once sentenced to be hung for murder, is said to have been indignant that he should have been convicted on the evidence of only two witnesses who saw the murder, when, as he said, he could easily produce a hundred who did not see it. So, if a few names happen to have been omitted from a large directory, it is hard to condemn the book on that account, for there are several thousand which have not been omitted. But, although we would not be so hypercritical as to complain of a few omissions of names, which must be the case in every such work, we cannot pass over without a remark the fact of a whole county being absent from this Directory. The only reason for the omission of Monmouthshire that we know of is its proximity to Wales, and doubtless some of the names would have been rather troublesome to the printers. The county still belongs to England, however, and its omission seems an unaccountable error. The book does not profess to extend beyond England, and therefore we cannot fairly complain that we do not here get a directory of such important cities to the trade as Edinburgh, Glasgow, and Dublin. Wales, however, should have been included. Instead of this, we have a very useful list of the chief wholesale and manufacturing firms in France. In London and the thirty-nine English counties which do appear, the list of names is copious enough, and the classification of these names is, if anything, a little too elaborate. We do not under-estimate the value of a large number of headings, as this is essential for a ready reference; but when we find that under Manchester, for instance, the firms of Mather and Tomlinson appear, the first twenty-two, and the second twenty-one distinct times, we are a little disposed to complain of the large amount of space given to them, and of the evident fact that certain houses were allowed to describe themselves *ad lib.* A little editorship, too, is wanting in the classification of retail traders in this respect, viz., that Patent Medicine Vendors are set down according to no rule at all. For example, to open the book quite at random, we find in Ipswich seventeen chemists and druggists and three patent medicine vendors, one of these being also in the first class. The best plan would have been, we think, to have assumed that all chemists were patent medicine vendors, and under the special heading to have given only those who were not chemists. Dentists and veterinary surgeons are given in this book, as well as herbalists, soda water makers, etc. We do not for a moment deny the great usefulness of the book, but we think it is hardly so perfect as it ought to have been, coming from Messrs. Kelly.

A READY STETHOSCOPE.

An ordinary kerosene lamp chimney, either straight or bulging, with the base placed to the chest and the top to the ear, makes a most excellent stethoscope, quite equal in sensitiveness to the manufactured instrument.—*American Medical and Surgical Reporter.*



LIQUID TRANSPARENT SOAP.

MR. SARG, of Vienna, whose pure glycerine is rapidly winning a high reputation in this country, which it well deserves, as it perfectly satisfies every test, is now introducing it in several attractive ways, which bear evident marks of a continental origin. The pound bottles are put up and labelled in a new and pretty style, and are very cheap. Perfumed glycerine too is a saleable article, and the transparent glycerine soap in neat little boxes is by this time too well known to require mention from us. Glycerine soap in a liquid form is, however, something quite new and answers a double purpose as it is both a lotion and a soap. One third of it is glycerine, but with water it produces a good lather, and as it is nicely scented it has everything in its favour. The wholesale houses think it will sell freely, for the first supply that reached London was very quickly snapped up. In use too it is not so extravagant as it might be expected. The German chemists, Liebig and Köhler are among its admirers.

JUBUBES.

SOMETHING a little different to what we have been accustomed to in these articles will be a welcome innovation. Messrs.

Warrick Brothers, of Garlick-hill, introduce some jububes of quite a new shape, more convenient to weigh out, and which have the especial advantage that they are not likely to run together. We presume they are of French manufacture, though of this we are not certain. They comprise the usual varieties—Voice, Delectable, Pâte de Lichen, Glycerine, &c., and are supplied in tins with sliding glass lids, which ought to have been the case a long time ago.

ASHTON AND PARSONS' WOUND PROTECTOR.



Messrs. ASHTON and PARSONS, the homoeopathic chemists, of Wormwood-street, have a great many saleable sundries, neatly put up, and likely to be popular with the public. We select their Wound Protector, partly because the preparation is itself of considerable value as a fluid court plaster, and to show a new kind of stopper which is adopted for it. The whole of the top of it is of boxwood, and in this shape a boxwood corked bottle is a very convenient one. The camel-hair pencil, as will be seen from the engraving, is fixed in the cork.

Christmas Goods.

THE approach of our annual festival brings with every year a more brilliant assortment of novelties. This is most noticeable among the perfumery houses, but we may be permitted to give the place of honour to the

LONDON STEREOSCOPIC COMPANY,

whose scientific toys have amused and instructed the public for many years, and have often astonished scientific men themselves, on account of their ingenuity and the abundant fertility of their production.—[For description of their Novelties see page 945.]

MR. RIMMEL.

While every changing season is welcomed by Mr. Rimmel in an appropriate and tasteful manner, the richest display of elegance and beauty from this establishment is always reserved for Christmas. One of the choicest articles which Mr. Rimmel has yet produced, and certainly the most



attractive novelty of the kind this season, is a graceful china vase-shaped perfume lamp. Its design is classical throughout, in the figures on it as well as in its form, and it is equally suited for the drawing-room, the ball-room, or where a refreshing fragrance is desired for the sick room. It is intended for toilet vinegar, and is at once easy to use, effective, and ornamental. Among Mr. Rimmel's delicacies may also be mentioned the Floral Cracker, which illustrates the language of flowers, and are artistic as well as sentimental; the Surprise Fans, with bouquets which rival nature; toilet boxes of many designs; and a large variety of little figures of all sorts of characters, from Mr. Punch to Mr. Bright, some of the portraits being remarkably well done, each concealing little fountains of perfume. These and all the old favourites make up a gay assortment which can hardly be surpassed.

MESSRS. LOW, SON, AND HAYDON.

It is not possible to speak in too high terms of the quality of the perfumes sent out by this well-known firm. Their most successful novelties for the season are a Jockey Club Sachet, which is presented in the appropriate form of a jockey's cap; another form of sachet, filling an elegant star-spangled slipper; imposing-looking miniature boxes of sweet luggage for "despatch by express train;" and a neat little case for cosmetic, in the form of a lady's reticule. Messrs. Low's Upper Ten Bouquet is new, at least to us, and is destined to win the favour of the lower ten thousand. They adapt the now well-known sprinkler to this and their other bottles of perfumes.

MR. SIDNEY BROWN.

This gentleman believes in woman's rights, and in the "Ladies' Pipe" has given us an entirely new thing in the way of a bottle of scent. It is a most striking novelty, and at first sight very deceptive. On our own responsibility we dedicate this pipe to every girl of the period, far advanced or otherwise, with the injunction, "Thus far shalt thou go and no further." Mr. Sidney Brown has also just introduced a preparation for the skin, called Philoderma, which is a non-unctuous compound of camphor and roses; at least these ingredients are the first to present themselves. We judge it will be very useful for the purpose intended.

MR. J. H. WHITBY.

Mr. Whitby's goods for the season are some remarkably pretty toilet boxes with various contents, excellently adapted for show and sale. One is a singular looking square Chino-Indian sort of case, containing an equally foreign-looking bottle of scent inside. Many other of Mr. Whitby's goods afford effective counter display. The designs generally are much superior to what we have hitherto seen in this class of goods.

MR. F. S. CLEAVER.

It is as well to draw a line somewhere, and we think all our readers will agree with us that pharmacists may not sell new-laid eggs, but none of them need be too proud to sell Mr. Cleaver's surprising imitations of these. The mystery is soon unravelled on cracking one, for they turn out to be a neat little box, and instead of a chicken, behold a small bottle of scent is produced. Mr. Cleaver's Snowballs are also new. We believe these are fancy soaps, and our judgment was corroborated on this point by seeing an adventurous member of our staff, who thought them something good to eat, draw a taster from one and proceed forthwith. They will bear a little more investigation.

FORBES, BORN, AND CO.

This firm, from whose establishment we have noticed several varieties of German goods, show some very superior specimens of Christmas goods imported from the Continent. Their costume crackers turn out most wonderful contents in the shape of paper imitations of the heads of cats, monkeys, donkeys, parrots, peacocks, etc., which are capable of being transferred to the majestic head of humanity, and cause infinite amusement. Fountains, robes and head-dresses are among the rest of the contents of these novel crackers.

Corner for Students.

CONDUCTED BY RICHARD J. MOSS.

The chemical formulae employed in this section are based upon the system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopoeia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The chemical nomenclature generally used in this Corner for Students agrees with that adopted in the new edition of *Fownes's Manual of Chemistry*, which is recommended as a text-book.

QUESTIONS.

I. LIQUOR SODÆ ARSENIATIS, B.P.—In the official process for the preparation of this solution, sodium arsenate rendered anhydrous by a heat not exceeding 300° is ordered. What objection is there to the use of crystallised sodium arsenate?

II. ACIDUM PHOSPHORICUM DILUTUM, B.P.—Explain the official test for the strength of this acid, also those for purity, and state what impurities the latter tests are intended to detect.

III. ÆTHER, B.P.—Explain with the aid of symbolic equations, the preparation of this substance by the official process.

IV. VOLUMETRIC SOLUTION OF IODINE, B.P.—Give equations expressive of the reactions which take place, when this solution is used for testing the four substances enumerated in connection with it in the *Pharmacopoeia*, and prove the correctness of the quantities given in metrical weights and measures.

V. SODÆ VALERIANAS, B.P.—Explain the official process for the preparation of this substance, showing by means of symbolic equations the reactions which take place.

VI. CALCIS PHOSPHAS, B.P.—Express symbolically the reactions which take place in the preparation of this substance by the official process.

VII. METHYLATED SPIRIT.—What is methylated spirit? Give a brief description of a method for the detection of this substance in tinctures.

VIII. SULPHURIC ACID.—Give a concise description of the commercial process for the manufacture of this acid from sulphur, showing, by symbolic equations, the various

reactions which occur, and calculate the quantity in gallons of oil of vitriol, sp. gr. 1.843, and containing 96.8 per cent. of acid (H_2SO_4), which should be produced from 100 lbs. of sulphur.

IX. ORGANIC ACID.—An unknown organic acid, not including any nitrogen, is combined with argentic oxide, and upon the salt thus produced experiments are made with the following results:—

50 grains of it leave when ignited 29.67 grains of metallic silver.

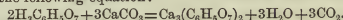
36.4 grains, when burned, gave 3.6 grains of water, and 17.6 grains of carbon dioxide.

From these data, deduce the composition of the acid on the hypothesis of its being dibasic.

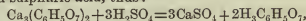
X. GAS ANALYSIS.—One hundred volumes of a mixture of marsh gas, hydrogen, carbon monoxide, and nitrogen, mixed with 100 volumes of oxygen, were subjected in an eudiometer to the action of the electric spark, and the diminution of volume found to be 97.5 volumes. The residual gas, by exposure to potassium hydrate, underwent a further diminution of 45 volumes. Lastly, the gas which remained was exploded by the spark, after mixture with at least twice its volume of hydrogen, and the reduction of volume which ensued was 82.5 volumes. From these data, deduce the composition of the mixture.

ANSWERS.

I. ACIDUM CITRICUM, B.P.—According to the official directions for the preparation of this acid, prepared chalk is added by degrees to hot lemon juice, till there is no more effervescence, calcium citrate is precipitated as represented in the following equation:—



The calcium citrate, after being washed, is treated with diluted sulphuric acid, thus:—

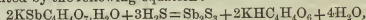


the greater portion of the calcium citrate being precipitated, whilst the citric acid remains in solution.

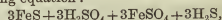
The sulphuretted hydrogen test is intended to detect copper or lead, and metallic matter in general. Tartaric acid should be detected by the potassium acetate test and also by the lime water, and sulphuric acid by the barium chloride test. Mineral impurities should be detected by incineration, and the volumetric test shows that the acid is not combined with a base.

II. ANTIMONYUM TARTRATUM, B.P.—The weight of ferrous sulphide required is 10.910 grammes.

The decomposition of antimony potassio-tartrate is represented by the following equation:—



two molecules of antimony potassio-tartrate requiring three molecules of hydrogen monosulphide, for the production of which three molecules of ferrous sulphide are required, as in the following equation:—

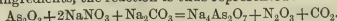


the molecular weight of antimony potassio-tartrate being 343, and that of ferrous sulphide being 88, the weight of the latter required to produce sufficient hydrogen monosulphide for the decomposition of 1 ounce or 28.3495 grammes of the former is found in the following proportion:—

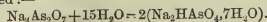
$$343 \times 2 : 28.3495 = 88 \times 3 : x \therefore x = 10.91.$$

III. POTASSÆ PRUSSIAS FLAVA, B.P.—The blue precipitate which potassium ferricyanide gives with ferric salts is ferric ferricyanide, $Fe_3C_7N_6$. The red precipitate with cupric sulphate is copper ferricyanide, $Cu_2FeC_7N_6$, and the white precipitate with lead acetate is lead ferricyanide, $Pb_2FeC_7N_6$.

IV. SODÆ ARSENIAS, B.P.—In the official process sodium pyroarsenate is first formed by fusing together the dry ingredients, the reaction is thus represented:—



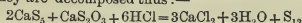
The sodium pyroarsenate is then dissolved in water, from which sodium arsenate crystallises; this reaction is thus represented:—



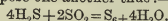
V. SULPHUR PRÆCIPITATUM, B.P.—When sulphur is boiled with calcium hydrate, calcium bisulphide is first

produced, and ultimately calcium pentasulphide and hyposulphite; the following equation represents the reaction:—
 $3\text{CaH}_2\text{O}_2 + \text{S}_{12} = 2\text{CaS}_5 + \text{CaS}_2\text{O}_3 + 3\text{H}_2\text{O}$

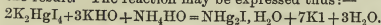
On adding the hydrochloric acid to the solution of these salts, they are decomposed thus:—



Calcium pentasulphide with hydrochloric acid would yield hydrogen monosulphide as well as sulphur, and calcium hyposulphite would yield sulphurous anhydride as well as sulphur; but in the above reaction very little, if any, hydrogen monosulphide escapes, as the gases, if they are produced, decompose one another thus:—



VI. NESSLER'S SOLUTION.—When the solution is added to a fluid containing an ammonium salt, a brown precipitate consisting of dimercur-ammonium iodide is produced. If the quantity of ammonia present is small, a yellow coloration is the result. The reaction may be expressed thus:—



VII. MAGNESIUM.—The weight of Magnesia Carbonas, B.P., with which the 27.75 grains of magnesium pyrophosphate corresponds, is 23.875 grains.

One molecule of magnesium pyrophosphate, $\text{Mg}_2\text{P}_2\text{O}_7$, contains half as much magnesium as one molecule of magnesium carbonate (MgCO_3), MgO , $5\text{H}_2\text{O}$, consequently, the molecular weight of the former, 222, corresponds with half the molecular weight, 191, of the latter; therefore, to find the weight of carbonate which corresponds with 27.75 grains of pyrophosphate, we have the following proportion:—

$$222 : 27.75 = 191 : x \therefore x = 23.875$$

VIII. SODA CRYSTALS.—The principal impurities usually found in commercial soda crystals are, sodium sulphate, chloride, hyposulphite, and sulphide, potassium salts, and calcium carbonate. To detect the sulphate, treat a solution of the crystals with an excess of dilute hydrochloric acid, and add barium chloride; a precipitate indicates the sulphate. To detect the chloride, add to a solution of the crystals an excess of nitric acid, and a small quantity of a solution of silver nitrate; a precipitate indicates the chloride. If the hyposulphite is present, sulphurous anhydride should be liberated, and sulphur precipitated when a solution of the crystals is treated with hydrochloric acid; if the sulphide is present, hydrogen monosulphide should be liberated by this treatment. Potassium is precipitated by platinum tetrachloride after neutralisation by hydrochloric acid; and calcium by ammonium oxalate, after neutralisation by acetic acid.

Commercial Soda Crystals may be purified by the following process:—The crystals are powdered and washed with cold water, then dissolved in hot water. The solution is filtered and cooled rapidly with constant stirring, and the crystals which separate are collected on a filter, washed with cold water, and dried.

IX. COMPOSITION OF THE ATMOSPHERE.—As the relative weights of equal volumes of the elementary and compound gases are represented by the atomic weights of the former, and half the molecular weights of the latter, it follows that the composition of the atmosphere by weight is formed thus:—

| | | |
|---------------------------|--------------------------|---------|
| Oxygen | 20.61 × 16 = | 329.76 |
| Nitrogen | 77.95 × 14 = | 1091.30 |
| Carbonic anhydride | .04 × 44 = | .88 |
| Aqueous vapour | 1.40 × $\frac{18}{17}$ = | 12.60 |

1434.54

From the weights thus found, the per centage composition is ascertained as follows:—

| | | |
|---------------------------|---------------|----------|
| Oxygen | 329.76 × 100 | = 22.987 |
| Nitrogen | 1091.30 × 100 | = 76.073 |
| Carbonic anhydride | .88 × 100 | = .061 |
| Aqueous vapour | 12.60 × 100 | = .878 |

99.999

X. COAL.—The combination of 100 grains of coal of the given composition, results in the production of the following substance:—

| | Grains |
|-----------------------------|---------|
| Carbonic anhydride | 260.676 |
| Water | 43.920 |
| Nitrogen | .950 |
| Sulphurous anhydride | 2.740 |
| Ash | 3.850 |
| | 312.086 |

The weights of carbonic anhydride, water, and sulphurous anhydride, are found by the following proportions:—

$$12 : 71.08 = 44 : x \therefore x = 260.626 \text{ carbonic anhydride.}$$

$$2 : 4.88 = 18 : x \therefore x = 43.920 \text{ water.}$$

$$32 : 1.37 = 64 : x \therefore x = 2.740 \text{ sulphurous anhydride.}$$

PRIZES.

The First Prize for solutions of problems presented in our November number has been awarded to

J. A. KENDALL, 1, Ridley-street, Blyth.

This is the third time that the first prize has been awarded to this Student, who has also succeeded in winning two second prizes.

The Second Prize has been awarded to

J. F. BROWN ("A. P. S."), 37, Town Wall-street, Dover, to whom the first prize was awarded in August for the paper on Volumetric Analysis.

Marks awarded for Answers.

| | I. | II. | III. | IV. | V. | VI. | VII. | VIII. | IX. | X. | E. Total. |
|-------------------------|----|-----|------|-----|----|-----|------|-------|-----|----|-----------|
| J. A. Kendall (1st pr.) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 63 |
| A. P. S. (2nd pr.) | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 59 |
| J. W. Evans | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 5 | 5 | 57 |
| J. Young | 5 | 5 | 4 | 4 | 2 | 2 | 4 | 5 | 5 | 5 | 54 |
| J. D. D. Thomas | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 53 |
| A. Fraser | 6 | 5 | 4 | 5 | 2 | 5 | 2 | 5 | 5 | 5 | 51 |
| A. E. I. | 5 | 4 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 51 |
| J. S. P. | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 50 |
| N. Cooker | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 49 |
| Non Nobis | 5 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 49 |
| W. Maddocks | 4 | 2 | 3 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 45 |
| J. S. E. | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 45 |
| J. W. | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 45 |
| J. C. Thresh | 4 | 4 | 1 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 44 |
| H. Hagood | 4 | 4 | 4 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 43 |
| Tento | 1 | 3 | 1 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 39 |
| J. Watson | 4 | 5 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 43 |
| J. K. | 4 | 0 | 4 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 32 |
| J. H. Watson | 2 | 0 | 4 | 1 | 2 | 0 | 3 | 0 | 0 | 3 | 15 |
| J. Robinson | 2 | 0 | 3 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 34 |
| C. B. L. | 4 | 5 | 3 | 0 | 5 | 5 | 5 | 5 | 5 | 5 | 24 |

TO CORRESPONDENTS.

*A. All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the correspondents believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

Prizes.—The students to whom prizes are awarded, are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

A. P. S.—I. One molecule of water unaccounted for in the first reaction. **J. Young.**—II. It was quite unnecessary to ascertain the weight of the hydrogen monosulphide. We reserve your problem for consideration.

J. D. D. Thomas.—I. Lead acetate is not ordered as a test; lead forms with citric acid salts which are insoluble in water. II. Your result was correct, but it should have been given in grammes.

A. Fraser.—VII. Two molecules of magnesium pyrophosphate are equivalent to one of Magnesia Carbonas, B.P. You based your calculation on the supposition, that one molecule of the former is equal to one of the latter.

A. E. I.—VIII. Your test for sodium chloride would not do, as argentic carbonate would be precipitated; nitric acid in excess should be added before the argentic nitrate.

N. Cooker.—I. Formula for citric acid incorrect. IV. Formula for sulphuric acid incorrect. VIII. The addition of barium chloride or nitrate to a solution of sodium carbonate should be preceded by the addition of hydrochloric or nitric acid in excess, otherwise a precipitate of barium carbonate would be produced. See remark to A. E. I.

W. Maddocks.—IX. and X. You should have given sufficient details of your calculations to show how the results were obtained. **J. S. E.**—VII. The molecular weight which you employed for Magnesia Carbonas, B.P., represented one molecule too much of water.

J. W.—X. Of course the combustion is understood to be complete; soot is consequently not one of the products.

Tento.—I. It is quite unnecessary to employ a test to ensure the absence of alkaline carbonates, or carbonic anhydride, as you could not expect to find these substances in citric acid. II. The method which you employed in solving this problem was very ingenious. VIII. See remarks to A. E. I. and N. Cooker under this head. Your process for the purification of the crystals is quite impracticable; in fact, the product, instead of being pure sodium carbonate, would be impure sodium chloride.

J. Watson.—IX. See remark to *W. Muldoen*. We cannot award two many marks for the neatness of your manuscript.
J. H. Watson.—Your formula for calcium citrate is incorrect. In this reaction six atoms of hydrogen—in the two molecules of citric acid—are replaced by three atoms of the dried calcium. VII. Ammonium and magnesium phosphite are converted by heat into magnesium pyrophosphate; magnesium oxide is not produced. X. In the combustion of coal the hydrogen combines with oxygen to form water, and the sulphur combines with oxygen to form sulphurous anhydride; consequently, free hydrogen and hydrogen monosulphide are not produced. You might improve your solutions considerably by making them more concise.
J. C. Thresh.—Your suggestion shall be duly considered.

Books offered as First Prizes.

Attfield's *Introduction to Pharmaceutical Chemistry*. (Van Voorst.)
 Brooke's *Elements of Natural Philosophy*. (Churchill.)
 Conington's *Handbook of Chemical Analysis*, with Tables of Qualitative Analysis adapted to the same. (Longmans.)
 Elliot and Storer's *Manual of Inorganic Chemistry*. (Van Voorst.)
 Fewness's *Manual of Elementary Chemistry, Theoretical and Practical*. (Churchill.)
 Fresenius's *Quantitative Analysis*. (Churchill.)
 Ganot and Atkinson's *Elementary Treatise on Physics*. (Longmans.)
 Garrod's *Material Medica*, with Modern Chemical Notation. (Watson.)
 Nodt's *Chemical Analysis, Qualitative and Quantitative*. (Blevin.)
 Northcott and Church's *Qualitative Analysis*. (Van Voorst.)
 Royce and Headland's *Material Medica*. (Churchill.)
 Willison's *Chemistry for Students*. (Clarendon Press.)
 [Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Barff's *Introduction to Scientific Chemistry*. (Groombridge.)
 Bloxam's *Laboratory Teaching*. (Churchill.)
 Church's *Laboratory Guide for Students in Agricultural Chemistry*. (Van Voorst.)
 Galloway's *First Step in Chemistry*. (Churchill.)
 Hofmann's *Introduction to Modern Chemistry*. (Watson.)
 Huxley's *Lectures on Elementary Physiology*. (Macmillan.)
 Oliver's *Lectures in Elementary Botany*. (Macmillan.)
 Potts's *Elements of Euclid*, School Edition. (Longmans.)
 Roscoe's *Lectures on Elementary Chemistry*. (Macmillan.)
 Wurtz's *History of Chemical Theory*, Translated by Watts. (Macmillan.)
 Wurtz's *Introduction to Chemical Philosophy*. Reprinted from the "Chemical News."
 [Any other scientific book which is sold for about five shillings may be taken as a second prize.]



MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

THE second monthly meeting of the Session was held in the Memorial Hall, Albert Square, on Friday, December 3rd, Mr. Brown, Vice-President, in the chair.

Mr. Fowler, of Bacup, was elected a member, and Messrs. Rhodes and Wolstenholme, of Oldham, and Messrs. Arrow-smith and Plant, of Ashton, associates.

Mr. HAMPTON then read a paper "On the Condition and Prospects of Pharmacy, in its relation to the Medical Profession," of which the following is an abstract:—

The author commenced by describing the intimate connection between the sciences of medicine and pharmacy. The chemist is, as it were, entrusted with the manufacture of the ammunition used by the physician in his conflict with disease, and the issues depending on his knowledge, skill, and exactitude, raise the post to one of the highest honour. The passing comments of medical journals, as well as the opposition which the passing of the Pharmacy Act aroused in the minds of many of the profession, evidence a sense of distrust towards us, which ought to be transformed into a mutual and friendly appreciation. The scientific standard according to which the rising generation of pharmacists will be educated, is such as to demand for that class its proper sphere of work, viz., the dispensing of medicines. What share of this have we in Manchester? There are in the city and suburbs about 246 chemists, and 234 physicians and surgeons; only about forty-six of the latter write prescriptions, the rest dispense their own medicines. Supposing each of the forty-six write ten prescriptions a day, we have an average of about two for each chemist. In many towns a prescription is rarely seen; how then can we expect much real or abiding interest (except so far as the law requires) in pharmaceutical knowledge. It is like teaching navigation to a sailor, without giving him the chance of seeing the ocean, or of even being afloat. We may rear with becoming

pride schools of pharmacy; but unless there be a demand created for the trained pharmacist, the knowledge gained will be acquired like a painfully imposed task, and, being found practically useless, will soon be forgotten. Partly in self-defence, and partly as a result of long usage, chemists, more especially in the poorer districts, resort to prescribing; and have we to stand on our defence for so doing? The public for a very long period has mainly depended on the chemist for the removal of minor ailments, and has not yet lodged complaint against him. The art of healing, and the science of pharmacy suffer, and are delayed by this mal-admixture of duties; each would be more fully developed if confined to its proper place, and we should have the satisfaction of being trustworthy aids in the amelioration of suffering and the curing of disease. Surely it was not merely to have suitable custodians of poisons that the Pharmacy Act was passed! Unless medical men make use of chemists in their proper capacity, pharmacy, as a science, will make little progress; and instead of there being a gradual diminution of counter prescribing, it will be much increased, as some use will be made of the knowledge acquired by the would-be pharmacist. It is very desirable, either through the Pharmaceutical Society, or by some other suitable means, that the medical profession be fully informed on this question—it is quite as important to them as it is to us. After some remarks on domestic medicine, the knowledge of which was becoming more widely spread by treatises, many of which were written by medical men, and by the greater diffusion of general scientific knowledge, Mr. HAMPTON concluded as follows: How is British Pharmacy to become the trustworthy helpmate of the physician? The answer depends alone upon the right understanding which may be come to between them; each must be content to give up certain territory which attending circumstances plainly prove should be relinquished, and new treaties of amity and friendship must be made between them.

Mr. BOSROCK, Ashton, said that in his town there was not one resident physician; every medical man dispensed his own medicines.

Mr. BLAIR, Bolton, enumerated the arguments used by the medical men of his town to justify themselves in dispensing, viz., that their fees alone would be insufficient remuneration, and their patients would make one prescription do for a whole family.

Mr. J. T. STUVE, after complimenting Mr. Hampton on the production of so interesting a paper, spoke of the growing custom amongst medical men of prescribing in English, or directing their patients to get a few pennyworths of drugs and dissolve them in water. Such prescriptions often gave the pharmacist much trouble in verbal directions to his customer, and were necessarily unremunerative. Counter prescribing to some extent was unavoidable in poor and lower middle-class districts; the prices charged by medical men for their medicines being higher than such classes could often afford to pay.

Mr. HALLIDAY, Mr. WATERHOUSE, and other gentlemen, thought a deputation from the Association should use its influence with the medical profession to bring about a clearer division between prescribing and dispensing.

Mr. F. B. BENDER said: Much as it was to be desired that chemists should have all the dispensing, that, according to Mr. Hampton's statistics, would only amount, in Manchester, to ten prescriptions per day for each; and they would still, in the majority of instances, be compelled to depend on other sources of income. In Austria and other Continental countries, where dispensing was the main support of the pharmacist, the number of chemists was limited, and bore a definite ratio to the population.

Mr. L. SEBOLD said that Hamburg, with a population of 200,000, had only about thirty chemists; and Berlin, with a population of 600,000, between forty and fifty; but these businesses, though worked with very few assistants, were of great value, from £10,000 to £30,000 being required by a purchaser. He thought Government, having insisted on a scientific qualification for the chemist, should take some steps, or use some influence with the medical profession to obtain for him his proper work. He would not, of course, advocate the Continental method, of limiting the number of chemists; that could never be done in this country.

The CHAIRMAN, in summing up the discussion, remarked that the question referred to in the paper read by Mr.

Hampson, was perhaps the most important one connected with the future. The Pharmacy Act compelled assistants who had spent years in the business, and who had not anticipated such a requirement, to submit to examination; he considered it unjust that such a provision should have been introduced; and he regretted that the Council of the Pharmaceutical Society, who professed that it was done much against their wish, and who were, therefore, bound to mitigate, as far as possible, the hardship occasioned, were really increasing the stringency of the modified examination. Many assistants had little accurate scientific knowledge; and yet, as every member of the trade who did a mixed business knew, were perfectly liable and trustworthy. It was not just that such men should be rejected, and thus in many cases driven out of the trade. He could not avoid asking himself what is the result to be obtained by this expensive education and severe examination; and the only one seemed to be the privilege of unrestricted competition with a large number for the very limited amount of dispensing left to the trade by the medical profession. It seems true that the attempt to suddenly convert our business into a *quasi* profession is a mistake. He was no advocate for ignorance and incompetence, and would do all in his power to elevate the standard of attainments of the aspirants for the succession to the present race of chemists and druggists, but would most strenuously protest against the compulsion of a large body of unprepared assistants to suddenly qualify themselves to practice pure pharmacy, when, owing mainly to the practice of medical men dispensing their own prescriptions, there is not enough of pure pharmacy to offer a legitimate return for the labour expended.

He considered that the Council of the Pharmaceutical Society should take this subject into serious consideration. Justice requires this, as at present their requirements are too great for our trading position, and they are bound to make some effort to secure to those from whom they demand such high qualifications, the work for which they are prepared.

With the power of the Pharmaceutical Society, now so much increased by legislative recognition and the influence and connection of the leading members of the Council, he believed that if a fair and candid statement of our case was drawn up and submitted to the various colleges and licensing bodies, and to the heads of the medical profession, it would have a painful effect. Let the Council take the initiative fairly, and local efforts will supplement their action, as our representative body will their position. It is a clear duty to attempt to diminish the practice of which we complain, and to secure for the trained and examined pharmacist his legitimate position, or abandon the several restrictions now enforced.

A most cordial vote of thanks having been passed to Mr. Hampson for his important paper, it was announced that at the next meeting, to be held January 7th, 1870, Mr. Siebold would read a paper "On the Atomic Theory and Modern Systems of Nomenclature." Coffee at 7 p.m.

BRISTOL PHARMACEUTICAL ASSOCIATION.*

A MEETING of the chemists and druggists of Bristol and its neighbourhood was recently held at the Philosophical Institution, Park-street. The meeting was numerously attended, and the following resolutions were carried with enthusiasm:—

"That an Association be formed and called the 'Bristol Pharmaceutical Association.'"

"That the object of the Association be the promotion of scientific pharmacy."

At subsequent meetings the scheme of the Association was more fully matured, and a Council consisting of the following gentlemen elected, viz., Messrs. Boorne, Boucher, R. B. Giles, R. W. Giles, Martin, Pitman, Player, Schacht, Stoddart, Stroud, Taplin, and Townsend.

The Council has since issued the following announcement:—

BRISTOL SCHOOL OF PHARMACY.

The Council have the pleasure to announce that they have made arrangements with Mr. Coomber and Mr. Leipner, the

Lecturers to the Science Classes at Nelson-street, by which they are enabled to offer to their fellow-members and associates the following complete course of instruction in chemistry and botany:—

A course of thirty lectures by Mr. Coomber, F.C.S., on Inorganic Chemistry, every Tuesday, at 8 p.m., commencing October 12th.

A course of thirty lectures by Mr. Coomber, F.C.S., on Organic Chemistry, every Thursday at 8 p.m., commencing October 14th.

A course of thirty lectures by Mr. Leipner, on Structural, Physiological, and Economic Botany, every Monday at 8 p.m., commencing October 15th.

A course of thirty lectures by Mr. Leipner, on Systematic Botany, every Monday at 8.45 p.m., commencing October 15th. At the conclusion of this series, that is in May next, an examination will be held in each subject, at which it will be expected that each student shall present himself for the subjects he has attended. In connection with that examination it is the intention of the Council to offer a series of prizes, of which further notice will be given.

Tickets for the entire series will be five shillings for members and associates, provided the holder agrees to present himself at the examination in May, if not, the fee will be ten shillings. The ticket will admit to either one, two, three, or the whole of the above series, but no smaller fee than five shillings will in any case be accepted.

PHARMACEUTICAL EVENING MEETINGS.

The Council also announce they have made partial arrangements for a series of monthly evening meetings, to be held, by the kind permission of the Committee, at the Philosophical Institution, Park-street, to which members and associates are invited free. The following is the outline of the scheme:—

Friday, Nov. 12th ... Address by the President, Mr. Stoddart, F.G.S.

" Dec. 10th ... Lecture by Mr. Coomber, F.C.S.

" Jan. 14th ... Pharmaceutical Papers and Discussion.

" Feb. 11th ... Lecture.

" March 11th, Lecture by Mr. G. Gillford.

" April 8th ... Pharmaceutical Papers and Discussion.

" May 13th ... Lecture.

G. F. SCHACHT, Hon. Secretary.

HULL CHEMISTS' ASSOCIATION.

THE annual dinner of this Association was held at the Cross Keys Hotel, on Thursday, the 25th November, 1899. Mr. Anthony Smith in the chair, in the unavoidable absence of the President, Mr. Baynes, when a room full of chemists met and spent a very pleasant evening. After the usual loyal and other toasts, the hon. secretary (Mr. Bell) and others pleaded for the better and more general support of the Benevolent Fund of the Pharmaceutical Society, observing, that as the fund was accessible to every member of the trade, and that any chemist, who through ill-health, or other unforeseen circumstances might become the recipient of it, it was the duty of every chemist in health and prosperity to remember, in a substantial manner, that all were not equally fortunate, and subscribe something yearly, be it ever so little, to make this fund a source of pride to those whose hearts are large enough to support it, and a comfort to those who need its assistance.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL ASSOCIATION.

This Society, which was created out of the old Association soon after the passing of the Pharmacy Act, is in a fair way of becoming one of the public institutions of the town. At the commencement of this year, the Council was fortunate in obtaining excellent and central rooms in the Music Hall, and these have been furnished with monies contributed by the Council and donations from many of the wholesale houses, as well as from kind friends. The Museum is replete with Materia Medica, Chemical, and Pharmaceutical specimens. The Library contains a very valuable collection of books, for the assistants and apprentices to study from

* Communicated by the Honorary Secretary.

for the various examinations rendered necessary by the Pharmacy Act. During the spring and summer months lectures have been given on Chemistry, Materia Medica, and Botany, and on the whole have been well attended by the students.

The first monthly lecture of the winter session, held on Wednesday, the 10th ult., was given by H. Clifton Sorley, Esq., F.R.S., on "The Application of the Spectrum Microscope to the detection of Adulteration." The lecturer, after a sketch of the general principles of this new and interesting discovery in the science of colour in its relation to light, showed, by a series of diagrams, etc., the system whereby adulteration in articles of common use are demonstrated by the spectrum microscope. Wines, beer, mustard, cheese, etc., were brought under review, and many most interesting and useful items of information were given to a large and appreciative audience. A vote of thanks was moved by Mr. Wilson, and seconded by Mr. Dobb.

BANKRUPTCY.

IN RE JOSEPH GRAVES, MEDICINE VENDOR, HUDDERSFIELD

This bankrupt came up before Mr. Commissioner Ayrton, at the Leeds Bankruptcy Court, on the 19th ult. Mr. Chambers, of Sheffield, who opposed, said bankrupt had been ordered to file an account as to certain goods from the 1st of January last, but owing to an error, the order had been entered as from the 1st of June. Bankrupt had complied with the order to some extent so far as related to June the 1st, but this was not what was ordered. Mr. Freeman, of Huddersfield, who supported bankrupt, submitted that he had complied with the order furnished to him, and that he had given all the information as to his estate which it was in his power to give. Bankrupt had been, in fact, a quack doctor, and had not kept any detailed books. Bankrupt was called and underwent a short examination to clear up some statements which had been made at a former sitting. Mr. Chambers stated that some leaves had been torn out of a consignment book, and prayed that the original order of the court might be complied with. An adjournment of the sitting was granted to the 17th inst.

IN RE W. BONOHER, CHEMIST, BEWDLEY.

On December 1st at the Birmingham Court of Bankruptcy, a first meeting was held in this matter. Last examination was adjourned until December 31.

A BANKRUPT ORDERED TO BE PROSECUTED.

At the Leeds County Court on the 17th ult. the matter of William Pickard Robinson, of Burley-road, Leeds, came before the Judge, Mr. T. H. Marshall. Mr. Emsley, who appeared for the assignee, said he was instructed to apply to his Honour for an order to prosecute the bankrupt under the 221st and the 223rd sections of the Bankruptcy Act. In doing so the learned gentleman stated that in April last Robinson was adjudicated a bankrupt, and in June he obtained his discharge, having previously sworn that he had no estate, and that he had no interest in any real property of any description. About a fortnight after he obtained his discharge, the bankrupt applied for and obtained a loan of £500 from Mr. Richardson, of Knaresbro', solicitor, upon security of an estate at Harrogate, which had been valued at £14,000, of which bankrupt was entitled to one-seventh part on the death of an aunt. This having come to the knowledge of the Registrar of the Court, he at once instituted inquiries, and obtained information of the amount of the loan. On the 27th of September last the bankrupt was summoned before the court to account for the concealment of this property from the court. On his appearance then, he stated that he was not aware that he had any interest until a few days after his discharge, when his brother lent him a copy of the will of his grandfather, who had left the property at Knaresbro' referred to, and that his brother told him that he had an interest in the estate, and wished him to get some money upon it, and pay his creditors. The bankrupt further said that he would swear that up to the time of seeing his brother, he did not know that he had any interest under his grandfather's will on the death of his aunt. After the bankrupt's examination, Mr. Emsley had summoned bankrupt's brother before the Registrar, and he then stated that the

whole of bankrupt's account relating to the will and himself was untrue. Under these circumstances, Mr. Emsley was instructed by the assignee, to apply to his Honour for an order to prosecute Robinson before the justices. His Honour said he thought the case was a fit and proper one to be carried further, and he should grant the order applied for.

IN RE WILLIAM HENRY JOHNSON, APOTHECARY, HALIFAX.

In this matter, Mr. Upton, for the bankrupt, made an application to Mr. Commissioner Ayrton, at the Leeds Bankruptcy Court on the 26th ult., for an adjournment, to enable him to file his accounts.—Mr. Bond, for the assignee, thought that when Mr. Upton had read the examinations in the case and heard a few facts, he would come to the conclusion that he had got a somewhat singular character. In the course of bankrupt's examination, he had admitted, and other persons had proved, that he had kept from the assignees every scrap of property that he possibly could. A warrant for the bankrupt's apprehension had been granted by his Honour, but he could not be found.—The Commissioner: Well, here he is now.—Mr. Bond: Yes, here he is now; but all our efforts to find him before were unsuccessful.—Mr. Upton stated that the bankrupt had informed him that he had good debts of £2500, and that all he wanted was time to prepare his accounts. At a later period of the day, the learned gentleman read a document in which the bankrupt gave information regarding the location of the property he has hitherto withheld from the assignees.—The Commissioner granted an adjournment till the 17th inst., with limited protection, for the purpose of testing the truthfulness of bankrupt's statements.

LAW AND POLICE.

OFFENCE UNDER THE PETROLEUM ACT.

On the 23rd ult., William Boaler, druggist, Aston-road, Birmingham, was summoned before the Birmingham magistrates, for having in his shop one gallon of benzoline without having a proper license in his possession, in contravention of the Petroleum Amendment Act, 1893. Mr. Wooley, the inspector, visited defendant's shop on the 15th ult. and found the oil in question; having tested it, he found that it became inflammable at a temperature of 55°. Defendant said he bought the petroleum some months since, and intended to put it into bottles for the purpose of cleaning cloth. On finding that he was liable to a penalty, he sent it away and had not sold any. The magistrates fined defendant 2s. 6d. and costs, and one of the bench informed him that he was liable to a penalty of £20.

STEALING PROPERTY FROM A CHEMICAL MANUFACTORY.

At the Bristol Police Court, on the 26th ult., R. Rudge was sentenced to six weeks' imprisonment, for stealing property, valued at 3s. 6d., from his employer, Mr. E. Doddrell, of the Chemical Works, Temple Backs, Bristol.

NITRIC ACID HAIR-WASH.—GEORGE AND WIFE D. SKEVINGTON.

This case came before the Court of Exchequer on the 15th ult., on argument by a demurrer to the plaintiffs' declaration.

The action was by a husband and wife against a chemist, for injuries sustained by the wife through her having used a hair-wash, sold and prepared by the defendant, and which turned out to be of a most noxious character. The wash in question was either sold directly to the wife, or purchased for her by her husband, for the purpose of cleaning the hair. It turned out, however, that whatever its component parts—whether from containing a large quantity of aqua-fortis, that this was not sufficiently diluted, or from its being otherwise prepared—the wash sold and delivered burnt the hair off the lady's head, and subjected her to great pain and inconvenience. One of the heads of damage is that the husband had been obliged to incur the expense of providing other hair for the adornment of his wife. The main question raised by the demurrer was whether a chemist, so selling or parting with a compound made up of dangerous materials, was guilty of such negligence as to render himself liable for the evil consequences resulting from the natural use of such compound. Their lordships, without calling upon the plaintiffs' counsel to support the declaration, held that he

was. The facts elicited, however, have still to be submitted to the arbitrament of a jury.

EAU DE COLOGNE.

A rather peculiar trial has just taken place at Cologne, to decide the point as to whether a man may sell false Eau de Cologne with impunity. It appears that a French traveller, who had been tempted by the seeming cheapness of some of the worthless perfume, bought a bottle, but soon discovered that it was not only scentless but even dangerous, for on rubbing his hands with it he burned himself as though with vitriol. The tribunal, however, ruled that it had no jurisdiction in the matter, for the label, although bearing such a similitude to the genuine water, had been candid enough to state in microscopic characters that "the contents were an imitation of which the purity was not guaranteed."

ARSENIC WORKS.

On the 20th ult., at the Tavistock County Court, several cases were decided involving points of importance to arsenic manufacturers. In the first case (Matthews v. Pengelly), the plaintiff, a farmer, brought an action to recover from defendant, trading as the Cornubia Arsenic Company, £32—the amount of damages sustained by the arsenic from defendant's manufactory destroying plaintiff's trees and crops. In the course of the trial, His Honour remarked that he had heard cases in which the chief medical men in the country had sworn directly opposite to each other—a fact which arose from different opinions. After much lengthened evidence being adduced, a verdict for the plaintiff was given for £15. In two other cases (Biscombe v. Pengelly, and Pitts v. Pengelly) of an exactly similar nature, verdicts were given respectively for £7 and £5.

COUNTY COURT PROCEEDINGS.

At the Birmingham County Court, on the 22nd ult., the case of Cooke v. Callard and Bower came on for hearing. The plaintiff, a chemist, in Sherlock-street, Birmingham, owed the defendants, confectioners, of London (manufacturers of a butter scotch which is sold largely by chemists), a small debt, and they put him in the Mareylebone County Court. He received a summons to pay £1 12s. debt and costs, and he remitted the sum to defendants, which they acknowledged, and said they would stop further legal proceedings. Defendants, however, failed to do this, and the consequence was that execution was issued. Judgment was given for the plaintiff for £5 damages, and 5s., a sum which he had paid to get back the things which were seized.

RAYNER V. FREEMAN.

This action was recently tried in the Court of Common Pleas, and referred to a policy of insurance against fire effected with the General Fire and Life Insurance Company. The plaintiff was a chemist and druggist, of High-street, Poplar, and he has had a small shop in Inglesheim-terrace, Ferry-road, Millwall. Upon the stock, fixtures, etc., of the last-named shop there was an insurance for £300. On the 6th of January last, a fire happened in the shop, but it was slight in its character, and soon put out. The plaintiff's case, however, was that the consequence was that most of the drugs were rendered almost worthless by the fire, and many of the bottles became so fragile that they broke upon being touched. The claim sent in was for £281 3s. 3d., and the plaintiff called a number of witnesses to show that the claim was fair and reasonable. On the other hand, there were many witnesses for the defendant, the substance of whose testimony was that the whole stock in the shop was not worth more than about £40, and that it was not so seriously damaged as had been represented. As to the fixtures—bottles, jars, etc.—they could be replaced for about £50. The jury found for plaintiff—damages £100.

CONVICTION OF AN ASSISTANT.

At the Chippenharn Police Court, on the 30th ult., John Tanner, druggist's assistant, was committed to gaol for six months for entering the shop and refusing to leave the premises of Mr. James Wharry, chemist and druggist.

AN ASSAULT.

On the 15th ult., Mr. Joseph Brough, chemist and druggist, High-street, Longton, was summoned before the borough magistrates, charged with assaulting W. Griffiths

and G. Large, bailiffs in the service of the County Court. It appeared that the men went to Mr. Brough's house to levy a distress for the County Court, when they were met at the entrance by the defendant, were assaulted, and summarily ejected from the premises. The defendant was ordered to pay 20s. and costs for each assault.

DEATH OF A CHILD FROM OPIUM.

A young woman named Woodford was tried on the 4th inst. at the Leicestershire Assizes for administering opium to her illegitimate child with intent to murder it. She had been an inmate of the Barrow Workhouse; and the evidence showed that a parcel containing opium had been introduced into the workhouse for her. Mr. S. Wright, surgeon, of Mountsorrel, had occasion to attend the child in March and April last: he had noticed that it appeared always to be under the influence of opium, and had warned the mother of the results. The evidence of some of the inmates of the workhouse showed ill-feeling on the part of the woman towards the child. The surgeon who made the post-mortem examination was of opinion that death had arisen from the administration of opium, and the want of proper food. The judge, Mr. Justice Blackburn, said, that if the jury believed that the prisoner knew that administering opium would endanger life, and still went on giving it, they might find her guilty of wilful and malicious administration; but that, if she gave opium without knowing or believing that she was doing the child any harm, she was entitled to an acquittal. The jury acquitted the prisoner.

THE SALE OF BENZINE.

On the 8th inst., Messrs. Newbery and Sons, of St. Paul's Churchyard, Barclay and Sons, of Farringdon-street, and Wm. Edwards, of Old Change, were summoned to the Guildhall Police-court, before Sir Robert Carden, to answer a charge brought against them by the City authorities of an alleged infringement of the Petroleum Act. The City Solicitor prosecuted; Mr. Poland appeared for Messrs. Newbery, as well as for Messrs. Barclay, and Mr. Edwards appeared in person. In the course of the trial it transpired that Messrs. Newbery had applied for a licence and had been refused. Messrs. Barclay had also applied for a licence, and had received a reply indicating certain provisions for storage which were considered necessary, and these arrangements had been attended to by the firm, but on the other side had there been any further correspondence. Mr. Edwards had not applied for a licence at all. In all other respects the cases were essentially similar, and therefore only that against Messrs. Newbery was gone into. This, it was stated, was the third prosecution in the City under the Act, and it was described by the City Solicitor as an aggravated case, on account of the circumstance just referred to. An inspector of weights and measures named Ledger proved that he had obtained from Mr. Newbery certain samples labelled respectively Benzine Collas, and Jackson's Benzine, the first of which he found flashed at 75° Fahr., and the second ignited at 50° Fahr. In reply to Mr. Poland, this witness said that Mr. Newbery let him have the samples quite readily, and on each was the proper caution label. He knew nothing of the supplementary Act introduced by the Home Secretary during the last session, but not passed, which was intended to permit the sale of such preparations as these under certain restrictions. Dr. Letheby was examined to prove the nature of these preparations, and to show that they came under the meaning of the Petroleum Act. Mr. Poland, addressing the magistrate, remarked on the great importance of this question to the whole trade, inasmuch as these were articles of daily sale and use all over the country, and were supplied by chemists, bazaars, etc., where a petroleum licence was unknown. He argued that, assuming the law had been infringed at all, it must certainly be an offence against the 6th, and not the 4th section of the Act, the latter being the one upon which the prosecution asked for a conviction. The 4th section clearly referred to the storage of petroleum in large quantities, and in framing the 6th section the Legislature must have had another and a less dangerous sort of dealing in view, as in the first instance the offender was liable to a penalty of £20 a day for every day the article was kept in stock without a licence, while in the second instance the fine was limited to £5. On receipt of the refusal to grant a licence, Messrs. Newbery had at

once discontinued the sale of all kinds of benzine, although they found great inconvenience and some injury to their business resulting from this. But when the Home Secretary last session introduced an Amendment Act to remedy the inconvenience which had thus been inadvertently occasioned by permitting the sale of preparations like these, not used for illuminating purposes, provided they were capsuled over and labelled with a sufficient precautionary notice, Messrs. Newbery, in common with many other firms, not being versed in the law, presumed that that Amendment Act had passed, and therefore resumed the business which they had suspended. Only when this prosecution was instituted had they discovered that the Amendment Act was among the many which, at the end of a session, are always pushed aside. Under these circumstances, he submitted to Sir Robert Carden, that if he thought it desirable to convict at all, the offence was so slight, and his clients had shown such perfect good faith and desire to act strictly in accordance with the law throughout, that a nominal penalty would fully answer the ends of justice. Sir R. Carden said that, taking into consideration these facts, and knowing that there had been no intention to break the law, he should inflict the nominal fine of 40s., each party to pay their own costs. A similar judgment was given in each of the other cases.

ACCIDENTS.

NOT GODFREY'S CORDIAL, BUT POPPY SYRUP.

AN important case to druggists came before Mr. Edge, coroner for Salford, at Swinton. On the 20th ult. that gentleman held an inquiry touching the death of a child named Walken. From the evidence it appeared that the mother of the deceased requested her husband to fetch a pennyworth of "Godfrey's" and he went to the shop of Mr. Sagar, chemist, for it. Mr. Sagar served him with it but did not ask him what it was for. The woman gave the child an ordinary teaspoonful and it died the next day. The police officer who had charge of the case stated that he had got the bottle, which he produced, and detailed a conversation that took place between Mr. Sagar, himself, and another officer. Mr. Sagar said the mixture was one which was commonly used in the district for children; he had often lectured against it, but if he did not sell it other chemists would. Mr. Sagar being present, was asked whether he wished to make any statement, the coroner at the same time informing him that it might be used against him at a future time. Mr. Sagar then said he was a chemist and druggist, and was registered under the new Pharmacy Act. He merely wished to say that he sold the mixture as Godfrey's "cordial," which it was not. It was a preparation from white poppy capsules, or syrup, prepared from white poppy capsules and lump sugar, and there was not a particle of opium in it as was usually understood. He did not label the bottle containing the preparation. The coroner asked Mr. Sagar if he had his register book with him, and he said he had not. The coroner then said that poppies was a second-class poison; and he should have put a label on the bottle containing the word "poison," together with his name and address. Mr. Sagar said he would be more particular in future. The coroner then summed up the evidence and pointed out to the jury that there had been negligence on the part of the druggist, for which he was liable to a penalty of £10, and for which he might afterwards be further dealt with; but the death of the child had evidently been caused by an incautious act of its mother. The jury having considered, shortly returned a verdict that the deceased died from an overdose of a preparation from white poppies which had been administered to it by its mother.

PETROLEUM EXPLOSION.

A serious explosion of petroleum took place on the 23rd ult., in the shop of Mr. Alcock, chemist and druggist, Clar-adon-street, Hulme. Two men were employed in the cellar, when they accidentally ignited a quantity of petroleum; an explosion took place and both men were sadly burnt. One, named Mr. Donald, has since died. At the inquest on the deceased, the petroleum inspector stated that he visited Mr. Alcock's premises on the 18th ult. November, and found only three or four gallons there. The license Mr. Alcock

holds is a retail one, and he was not allowed to keep oil in casks. It was an infringement of the license not to have drawn it off sooner, and if witness had visited the place and found it so, Mr. Alcock would have been summoned.

BATTLE'S VERMIN POWDER.

On the 1st inst. an inquest was held at Sheffield respecting the death of Mr. Richard Pendred, a butcher in comfortable circumstances, who had poisoned himself by taking a quantity of "Battle's Vermin Killing Powder." Medical evidence showed that Pendred had taken enough poison to kill five men. A verdict of self-poisoning was returned.

DEATH FROM CHLOROFORM.

On the 10th ult. a coroner's inquiry was held at Lincoln College, Oxford, touching the death of a commoner of that college named Herbert Hildyard Clark, the son of a gentleman in India, who had died the previous day, under the influence of chloroform which was by his own desire administered to him previous to undergoing a surgical operation. The medical evidence adduced proved that the chloroform had been properly administered; but by the desire of the jury a *post-mortem* examination was made, and the surgeon stated that in his opinion death was caused by the action of chloroform upon a weak heart. The jury returned a verdict in accordance with this evidence. The deceased was only nineteen years of age, and was a healthy-looking young man.

DEATH OF A CHILD FROM PILLS.

A death by misadventure, or rather from the mode of retailing pills by grocers, occurred at Manchester, on the 4th inst. The mother of a child named Speakman, went to the shop of Thomas Hallam, grocer, and asked for a pennyworth of "Castor Oil Pills." She gave the child (who had recently been vaccinated) one of the pills on the following day, and immediately afterwards it fell into a deep sleep. Convulsions followed, and although medical assistance was called in, the child died.—Dr. Holt, in giving his evidence at an inquest held on the body of the child, said the box was labelled cough pills, and the pills themselves contained either morphia or opium; of opium each pill would contain half a grain, which was equal to ten drops of laudanum. The child's death had no doubt been produced by the opiate.—The grocer said he sold the pills believing them to be of castor oil, and was not aware that he had any cough pills in his shop.

The coroner's jury who sat upon the bodies of the four persons killed by the explosion of rectified naphtha, at the works of Messrs. William Evans and Son, of Wolverhampton, on the 1st of November, have returned a verdict of accidental death, and recommended that manufacturers generally should take care that inflammable spirit should be stored in a safe position.

An explosion of gas occurred on the 24th ult., at the house of Mr. Robert Thomas, chemist and druggist, Catherine-street, Liverpool. It appeared that Mrs. Thomas was endeavouring to discover the place where some gas was escaping, and had in her hand a piece of lighted paper, and the flame coming in contact with the accumulated gas, and a terrific explosion took place. Mrs. Thomas, who was in her night dress, was enveloped in flames, and unfortunately badly burnt. The explosion did considerable damage to the house.

GOSSIP.

It has been decided that simultaneous congregational collections shall be made in Leeds, in aid of the funds of the Infirmary and Dispensary, annually. The experiment was tried last year, the result being £1,214.

A meeting of the provisional council of the Medical Reform Union Association, was held on the 4th inst., at Birmingham, Dr. Bell Fletcher, president, in the chair. Mr. Sampson Gamgee, vice-president, stated that a confidential communication had been received from a high Government

official, and the result of that would be that, pending the issue of other matters, no immediate action would be taken in the memorial of the Union.

THE TAXES FOR THE NEXT YEAR.—Are our readers aware of the burden that will very soon be put upon them, and are they making the necessary preparations to meet it? On the 1st of January all the taxes for the year not only become due, but will be payable, and must be actually paid. They will be compelled, under severe penalties, to take out licences from the Excise, precisely as now for the keeping of dogs. Therefore the whole of the year's taxes must be paid in advance, instead of being collected half-yearly at the end of the year as hitherto. Nor is this the worst of it. The income tax is to be collected in like manner; the whole year to be paid at once, in the same month of January, already severely burdened by the compulsory payment in advance of the assessed taxes, and when all the Christmas bills present themselves clamouring for settlement. We give our readers this notice that they may make preparations to meet a demand whose existence the public does not appear to have yet realised, but which, when it is understood, will create a commotion such as has not been seen for many a day.—*Law Times.*

TENDERS OPEN.

THE corporation of the borough of Salford are prepared to receive tenders for the supply of white lead; red lead; paints; boiled, raw, sweet, and paraffin oils; spirits of turpentine. Tenders opened on the 17th inst.

NORTH-EASTERN RAILWAY.—White and red lead, tallow and palm oil, olive oil, seal and whale oil, refined rape and linsed oil. December 22nd.

LANCASHIRE AND YORKSHIRE RAILWAY.—Gallipoli, rape, linsed, and sperm oils, paints, tallow, for six months. Tenders opened on the 14th inst.

The guardians of the parish of Birmingham will be prepared, on the 15th inst., to receive tenders for the supply of dysalteryies.

The guardians of the Aston Union will be prepared to receive, on the 21st inst., tenders for the supply of single and double trusses.

Trade Memoranda.

WHEN it once becomes the fashion to abuse a public individual or corporation, the habit is so contagious and the amusement of baiting it so irresistible that by no possibility can the culprit follow any course of action which shall be satisfactory to the censors. Imagine anyone bold enough to write a good word for the St. Pancras Board of Guardians just now, even if that body should, by the merest accident, for once act discreetly. The Metropolitan Board of Works, too—although decidedly distanced in the race for public disfavour by the first-mentioned Board,—has of late fallen into disgrace, particularly with the daily press. The kicks and ha'pence which until lately Londoners have fairly distributed between the Metropolitan Board and the Corporation of the City are now divided in a much less impartial manner. Smiles and encouragement now reward every effort of the City, from the Lord Mayor's Show downwards—or upwards (?),—while the unfortunate Board has had to contend with many pressing difficulties, in the midst of a perfect Turkish bath of hot and cold water. That the City authorities enjoy and cultivate this state of public feeling was manifested the other day at the Benzine trial at the Guildhall. One of the defendants ventured to hint at the much greater stringency shown to dealers in petroleum living in the City, as compared with the more liberal treatment of those who resided within the jurisdiction of the Metropolitan Board of Works. This observation occasioned a chorus of self-laudation from the bench and the prosecuting counsel. In describing the efficient manner in which everything in connection with the Petroleum Act had been carried out by those on whom the arrangement devolved in the City, the City Solicitor took the opportunity of remarking that care had been taken to advertise their regulations thoroughly. Now, as we our-

selves were a little concerned in this matter, we will, in a few words, add our testimony on this point. When the arrangements were made whereby the two bodies we have spoken of were entrusted with the control of the sale of petroleum, we suggested to both the desirability of their making an official announcement of their regulations to chemists and druggists, as well as to the other trades concerned. It will be remembered that the Metropolitan Board of Works, about that time, inserted in this paper and in the *Pharmaceutical Journal*, as well as in several class journals connected with other trades, prominent advertisements on the subject. In this, and, as far as our experience went, in all other matters connected with the working of the Petroleum Act, the Board manifested the utmost desire to fulfil the obligations imposed on them by the Legislature in the most truly efficient manner, affording the greatest protection to the public on the one hand, and avoiding unnecessary interference with dealers on the other. On the part of the City, however, while equally acknowledging the importance of making an announcement to chemists, those who managed this department, for the sake, we presume, of saving a few shillings, chose to insert a very modest advertisement in a publication which had not then enjoyed six months' existence, and was comparatively unknown to the trade. It was hardly fair, therefore, for the City Solicitor to make a boast of the fact that the trade had had reasonable intimation of their position by means of public advertisement. It may be that the City has shown more activity than the Board in hauling up *quasi* offenders; but although it is sometimes difficult to draw the line exactly between those who break a law by mistake, and those who set it at defiance, there was no difficulty in the late cases, at all events, and vexatious legal interference on the part of its officers does not, as the Solicitor seemed to intimate it did, add to the credit of a corporate body.

EARLY CLOSING.—The chemists, etc., of Ledbury have announced that it is their intention to close their establishments every evening at seven o'clock, excepting Saturday, on which evening they will remain open until ten. This decision is to take effect from November 23, 1869, to March 31, 1870.

GAZETTE.

BANKRUPTS.

BOUCHER, W., chemist, Bewdley.
CARR, H., chemist, Tunbridge Wells.
CHING, D. M., surgeon-dentist, Plymouth.
DUPRE, F., apothecary, Portland-terrace, Oxford-road, Manchester.
GUTTERIDGE, K., surgeon, Osnaburgh-street, London.
HENNE, W., surgeon, Cinderford, Gloucestershire.
HOSKING, G. N., medical assistant, Cefncoedycy-gomer, Brecknockshire.
LAWRENCE, R. M., M.D., Great Cumberland-place, London.
LEITCH, JOHN, chemist, Sunderland.
SCOTT, W., druggist, Sheffield.
TAYLOR, H., dentist, Fulham road, London.
TURNER, W. W., druggists' assistant, Nottingham.
WAINWORTH, W. F., chemist, Blackpool.
WILLEY, JOSIAH, surgeon, Bristol.

PARTNERSHIPS DISSOLVED.

BERRYMAN and DAVY, surgeons, Penzance.
LEWIS, THOMAS, and JENKINS, JOHN JONES, vitriol and chemical manufacturers, Llangefeloch, Glamorganshire.
PULLAN and PULLAN, surgeons, Epsom, Lincolnshire.
RICHARDSON and Co., soap manufacturers, Binsphgate-street, London.

DIVIDEND MEETINGS.

LADBURY, H. A., chemist, Newport, Shropshire, Dec. 24.
ROBERTS, R., druggist, Llanwrst, Denbighshire, Dec. 24.



EARLY CLOSING IN THE WHOLESALE DRUG TRADE.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—I understand there is a growing tendency in the wholesale trade to curtail the hours of business. Several important firms have closed their establishments for some

time past at 6 p.m., and within the last few weeks, one or two more have followed their example. The movement is a great boon to those employed, as many are obliged to reside a long distance from their place of business.

Trusting it will soon become universal,

I am, Sir,

Yours faithfully,
WHOLESALE.

PETROLEUM TESTING.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—The statements in your correspondent Mr. Thomas P. Blunt's letter, which appeared under the above heading in your issue of November 15th, should not be allowed to pass unnoticed. That any gentleman of Mr. Thomas P. Blunt's assumed capabilities should arrogate to himself the expression of the private views of a bench of magistrates on a case tried before them in which he was a witness for the prosecution is sufficiently surprising, and only rendered the more so by the fact that those alleged views are in direct opposition to the decision of those magistrates.

But he further proceeds, in direct contradiction to every one of the newspaper reports, to state his perfect confidence in his results, which we presume he considers is evinced in the following extract from the report of his evidence as given at the trial:—"He found it give off inflammable vapour between 98° and 100°, but could not be positive to a degree; he took ten minutes to raise the temperature from 70° to 98°. He had had no previous experience in the testing of petroleum."

We produced certificates that the oil tested not under 104° from Mr. Laird, of Messrs. Laird and Adamson; from Mr. Banner, of Messrs. Holt and Banner; and from Mr. Kemp, of London; and Mr. Blunt finally caps his assertions by the statement that the "worthlessness of such certificates has been thoroughly exposed in the *Standard*." We have in vain carefully scanned the columns of the *Standard* for the past three months, but can find no such exposure as he refers to, and Mr. Kemp's (Tester to the Petroleum Association) certificates of test have always been, and are still, accepted, with a few insignificant exceptions, by the whole of the London petroleum trade as final and conclusive.

But our case, as Mr. Blunt well knows, did not rest alone on these certificates, but was supported in addition by the evidence of a number of gentlemen in court whose scientific attainments at least equalled those of your correspondent, and who all agreed with Mr. Kemp in finding the oil test not under 104°, and this evidence was proffered (as may be seen from the reports), but not called for by the magistrates, who considered the said certificates sufficiently conclusive to warrant their summary dismissal of the prosecution; and in order to meet Mr. Blunt on his own ground, we are here unwillingly compelled to state that we have been assured, on authority at least equal to that quoted by your correspondent, that the bench dismissed the case owing to the evident hesitation and uncertainty displayed by Mr. Blunt, and the conclusive nature of the evidence given and proffered for the defence.

We do not desire to impugn the good faith of Mr. Blunt's evidence in the least, and the difference between the results obtained by him in the absence of any experience and those obtained by others who have had experience may be easily reconciled. He stated that "he raised the temperature of the oil from 70° to 98° in ten minutes." This, according to the written directions of Dr. Letheby (who advised the Government in the framing of the instructions for testing prescribed by the Act), should have occupied at least about twenty-eight minutes; and a carefully-conducted series of experiments have satisfactorily shown that oil which will not "flash" under 104° when properly tested, taking about twenty-eight minutes to raise the temperature from 70° to 98°, may be made to flash at 100° by improperly raising the temperature in ten minutes, or at 97° to 98° by improperly raising the temperature in five minutes, and for much valuable information on this and many other important points in connection with the testing of petroleum, we would refer Mr. Blunt and your readers to a little pamphlet just issued under the title of "The Examination of Petroleum," by A. Norman, Esq.

In order that our customers and ourselves may be spared any risk of loss of time and annoyance arising from the want of experience, as in Mr. Blunt's case, on the part of those who are made the instruments of applying the provisions of the Act, we have raised the standard of the test of our oil from 104° to 110°, which places it beyond the power of the crassest ignorance to question; and in this we think it would be well if we were joined by the whole trade.

Yours respectfully,
SAMUEL AND PEACE.

The Albany, Old Hall-street, Liverpool,
and 35, John-street, New York U.S.,
December 3rd, 1869.

HOTCHKISS'S OIL OF PEPPERMINT.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—My attention has been called to an extract from the *CHEMIST AND DRUGGIST* in the New York *Druggists' Price Current List* of Oct. 27th. In this extract there is quoted a mendacious charge made against me in the last-named publication, of selling my name and labels to authorize peppermint oil.

Will you permit me to deny as strongly and emphatically as possible the whole truth of this accusation? As I do not know the motive which led to the publication of this charge, I will say no more concerning its origin than that it has not one particle or shadow of foundation.

As I am probably one of the largest manufacturers of essential oils in the world, although I grow peppermint very largely I do not pretend that I grow all the oil I send out; I buy peppermint grown by others;—but I have never put my name and labels on oil which has not been most carefully refined and purified by my usual processes. Having gained the following first prize medals—London, 1851; New York, 1853; Paris, 1856; London, 1862; Hamburg, 1863; Paris, 1867; and other Medals, Honourable Mentions, Diplomas, and Honours,—it would be, as you justly remark, folly and suicide of my reputation to adopt the course imputed to me.

Nothing would induce me to give or sell my name or labels for any oil not carefully refined and purified in my manufactory. Trusting that you will do me the justice to give this a place in the *CHEMIST AND DRUGGIST*,

I am, Sir, very respectfully,
Your obedient Servant,
H. G. HOTCHKISS.

Lyons, Wayne Co., N. Y., United States.
November 10, 1869.

[We should have been better satisfied with something more definite than this. Our New York contemporary, from whose columns we extracted the statement which we published respecting the manner in which a large quantity of oil of peppermint was sent by other makers to the agents of Mr. Hotchkiss, and sent out by them with Mr. Hotchkiss's label on it—apparently for the sake of obtaining a higher price—has twice returned to the subject, and each time emphatically reiterated its previous assertions. The word of one gentleman in the United States is to us equal to that of his opponent, as we cannot pretend to be thoroughly posted up in the dispute; but we confess that in this case we are rather at a loss to understand exactly what it is that Mr. Hotchkiss so "strongly and emphatically" denies. He says it is the "accusation." Well, the accusation was, that he or his agents were in the habit of placing on certain bottles of peppermint certain labels, which affirmed that the oil was of his (Mr. Hotchkiss's) manufacture. This in his letter he seems to acknowledge a little further on. His refining and purifying processes may be very excellent for aught we know, but that is quite apart from the question; or it may be that he can buy really better oil than he can himself produce—if so, let him buy it by all means; but does he place labels on bottles which say the oil is of his manufacture, when it is not? We are in the habit of believing here that Howard's quinine is quinine which has been manufactured from bark by the Messrs. Howards, and we should be very much astonished indeed to discover that a single bottle on which those gentlemen placed their label and seal had in the first place been manufactured by somebody else. We are really sorry to reply

to our correspondent in this manner; but we regard his letter either as very unfortunately expressed for his own interests, or as an attempt to mystify us. We would not injure Mr. Hotchkiss or any other manufacturer, in the estimation of the English trade, recklessly; but we think, if he chooses to address us again, we have a right to expect a fuller explanation of the facts.—Ed. C. & D.]

RAYNER v. FREEMAN, SECRETARY OF THE GENERAL LIFE AND FIRE INSURANCE COMPANY.

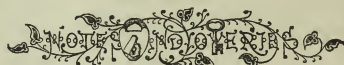
TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

DEAR SIR,—I feel it incumbent on my part to bring before the trade generally as complete an account of the loss I have sustained by fire at my branch place of business, 14, Ingleheim-terrace, West Ferry-road, Millwall, as the nature of the case will admit of. On the 6th of January, the above fire took place. I immediately took steps to furnish the Insurance Company as complete an account as it was possible to give under the circumstances, which the Company over and over again declined to accept; they wanted all the items absolutely enumerated as before the fire took place. Consequently, they stated, unless I furnished the same, it would be impossible to proceed with the settlement. I must give you to understand there was a large hamper of goods entirely consumed; also about 200 bottles of chemicals, essential oils, etc., either completely destroyed, or the labels upon the same so obliterated as to become quite unintelligible. Under those circumstances, I consulted my solicitor, E. W. Seale, Esq., 35, Lincoln's Inn Fields, who issued a writ against the Company. They put in an appearance, and the Master of the Rolls made an order for further particulars, which were furnished, and we suggested that the same should be referred to arbitration; but after some three or four months had elapsed they imputed fraud and false representation. Now, I said, I will not accept of arbitration, as it is a question of character to me, so it must go before a jury; therefore, the same was put down for trial in June last. The jury was a special one provided by the Company, and five out of six who viewed the premises were absent, and fined £10 each. Mr. D'Aubney, of Shepherdess Walk, was the shower on my side, and he took up two or three bottles and opened some of the shop drawers in order to explain the contents to the jury, when the Under Sheriff interfered and prevented him from proceeding further. Therefore, I will leave the public to judge of the unfair manner in which I have been treated. Before the same were viewed by the jury, the Insurance Company had possession, the bottles were washed, and the stoppers which were blown out by the heat replaced, and the floor swept up; so of course gave quite a misrepresentation of facts, which was a great injustice to me. The case came on again for trial on Friday, the 26th of November, and lasted two days, when the above came out in evidence and was acknowledged by their own witnesses. Two of the jury were again absent and fined £20 each. I was examined for about three and a half hours, and my evidence was not rebutted in any material particular. Fortunately for me, I had a stock book to prove for £154 odd worth of drugs, etc., which was taken in four days by Mr. Nixon and myself, who was in negotiation with me for the business; and the remaining stock, consisting of drugs, patent medicines, sundries, etc., we went roughly over, and estimated would come to about £70 or £80. The fixtures were of first-class workmanship. Bottles, jars, gas-fittings, and everything else the place contained, was mutually agreed should be £100; and the reason the purchase fell through was on account of Mr. Nixon's father declining to advance him the necessary amount; therefore it was upon these grounds solely I had the means of knowing my loss, and arriving at the basis upon which I made my claim. The amount I claimed was £281 3s. 3d., and I allowed them £18 15s. for goods taken from stock. It is the general opinion I should have obtained a verdict for the full amount had not the foreman of the jury apparently been so dead against me, for the Judge was entirely in my favour, and I think everyone else would concur if they had heard the excellent summing up. As it was I only got £100, consequently I am about £180 out of pocket. I am going to understand the costs will amount on both sides to between £700 and £800, which of course the Company will have to

pay. As the above is most important to the trade, and shows the want of some more uniform system generally as regards the establishment of an office solely connected with the trade, for as it at present stands we are quite at the mercy of the different Insurance Companies who choose to dispute proper claims. Supposing this had been in my sole dependence (which is the case in a great number of instances), it would have taken place at my head establishment, I should have lost over £1,000, exclusive of goodwill, etc., and I have no doubt the Company would have had the impudence to offer me £100 as compensation, at least I judge from past results. Hoping you will favour me by inserting the above, and begging to apologise for the space I have occupied,

I am, Sir, yours truly,

LOYD RAYNER.



CARRE'S DRUG MILL.—Messrs. J. P. Bolt and Co., of Tavistock, would be much obliged if any of our readers can give them their experience of "Carre's Patent Drug Mill." They would like to know if it does its work well, and is not likely to get out of order.

MANNA.—Mr. Haselden writes:—Your representative at the Pharmaceutical Evening Meeting, November 3rd, has reported me as saying that the only present use for manna was for making Blue Pills. Of course I said *Colonel* Pills, and your reporter is alone responsible for the mistake.

CEMENT.—Inquirer.—We have often used the "cement" noticed in another page for the purpose specified.

LIQUID GLUE.—A Subscriber.—A very small proportion of nitric acid will keep the glue liquid.

MR. G. H. BAYLEY (Saitaire).—Your inspector is wrong. We are informed by the Inspector for the City of London that the measures you refer to are certainly legal if they are accurate to the joint (x). If you have bought them properly stamped there is no occasion for you to have them stamped again.



(The following list has been compiled expressly for the CHEMIST AND DRUGGIST by L. de Fontaine-moroux, Patent Agent, 4, South-street, Finsbury, London, 10, Rue de la Fidélité, Paris; and 3, Rue des Minimes, Brussels.)

- Provisional Protection for six months has been granted for the following:—
- 2389. A. M. Davis, of Bromley. Improved aerated alcoholic drinks. Dated 1st September, 1899.
 - 2390. J. Wallace, of Belfast. An improved method of and apparatus for distilling alcoholic liquors. Dated 8th October, 1899.
 - 2394. J. More, of Lee, Kent. Improvements in the preparation of oils for painting or other purposes. Dated 9th October, 1899.
 - 2391. R. J. Ellis, of Liverpool. Improvements in apparatus for desiccating animal and vegetable matters. Dated 13th October, 1899.
 - 2393. P. Jacques, of Paris. An improved process for purifying and decolorising blood, albumen, and apparatus employed therein. Dated 15th October, 1899.
 - 2394. J. Scharr, of Leeds. Improvements in the manufacture of liquid soap. Dated 20th October, 1899.
 - 2391. W. E. Newton, of London. An improved mode of or process for preserving animal or vegetable substances from decay. Dated 20th October, 1899.
 - 2394. H. Brooks, of Regent's-park. An improved metallic cap or cover to glass or other bottles or vessels. Dated 21st October, 1899.
 - 2395. J. Becker, of Paris. An improved apparatus for stopping bottles. Dated 21st October, 1899.
 - 2394. R. Scott and W. McVie, both of Addiswell, Middletham. A process whereby the sulphuric acid residues produced in the refining of oleaginous and bituminous matters may be utilized and employed for the production of sulphate of soda and sulphide of sodium and black ash. Dated 23rd October, 1899.
 - 2398. T. Deichmann, of Chester-street, Belgrave-square. Improvements in preserving meat. Dated 23rd October, 1899.
 - 2399. W. E. Lake, of London. Improvements in the manufacture of dry white-lead and white-lead pigment from metallic lead. Dated 25th October, 1899.
 - 2402. D. Spill, of Hackney. Improvements in the preparation and use of solvents of xylol, and so as to render the same more suitable for industrial applications. Dated 25th October, 1899.

Despatches
1446. R. J. ...
1447. W. R. ...
1448. C. D. ...
1449. A. V. ...
1450. W. R. ...
1451. W. A. ...
1452. F. A. ...
1453. H. L. ...
1454. W. R. ...
1455. J. B. ...
1456. J. B. ...
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1500. J. B. ...

3146. R. J. Everett, of West Ham, Essex. An improved process for the manufacture of salts of ammonia from ammoniacal-gas liquor. Dated 30th October, 1869.
3204. C. Crookford, of Holywell, Flint. Improved modes of treating metalliferous ores and materials, and obtaining metallic and chemical products therefrom, by utilizing some of the waste products from smelting works, chemical works, tin-plate works, galvanizing works, and paper mills, and for improvements in furnaces and apparatus in carrying out the same. Dated 5th November, 1869.
3220. J. V. Michaux, of Hampstead. An improved method or means of securing corks in bottles. Dated 9th November, 1869.
3252. G. Simpson, and L. S. Sturges, of Glasgow. Improvements in arrangements or apparatus for withdrawing beverages or other liquids from casks or other vessels, and for elevating the same. Dated 11th November, 1869.
3295. W. Gossage, of Wilkes, Lancaster. Improvements in obtaining a certain compound of soda by the decomposition of sulphate of soda and a certain compound of potassa by the decomposition of sulphate of potassa; also in obtaining sulphur ether free or combined from the gaseous products of such decompositions. Dated 15th November, 1869.
3324. C. Faure, of London. Improvements in galvanic batteries. Dated 15th November, 1869.

Letters Patent have been issued for the following:—

141. W. R. Luke, of London. An improved detergent or saponaceous compound. Dated 11th May, 1869.
1440. C. D. Abel, of London. Improvements in galvanic batteries. Dated 11th May, 1869.
1535. A. Van Winkle, of Bloomsbury. An improved device for securing corks in bottles. Dated 18th May, 1869.
1536. W. R. Lake, of London. Improvements in machines for manufacturing capsules for closing bottles, jars, and other vessels. Dated 18th May, 1869.
1595. W. A. Gibbs, of Finsbury. Improvements in ice houses, store-rooms, and refrigerators. Dated 24th May, 1869.
1632. F. A. Barrow, of Glasgow. Improvements in purifying or bleaching mineral oils. Dated 27th May, 1869.
1706. H. Larkins, of Leighton-road, and W. White, of Hampstead. Improvements in the manufacture of magnesium, and in the preparation of its anhydrous chloride. Dated 2nd June, 1869.
1957. W. R. Lake, of London. An improved method of and apparatus for rendering and retaining lard, tallow, and other fatty and oleaginous matter. Dated 28th June, 1869.
1970. W. E. Gedge, of London. The incorporation of extract of meat with all kinds of sauces or comfits, with syrups or any other liquid, or with quinine wine and all kinds of wines prepared with quinquina. Dated 30th June, 1869.
2547. W. R. Lake, of London. An improved method of and apparatus for rendering and retaining lard, tallow, and other fatty and oleaginous matter. Dated 27th August, 1869.
2810. J. Buchanan, of Hebburn, Durham. Improvements in obtaining and applying a substitute for soda crystals, soda ash, or refined ash. Dated 28th August, 1869.

Patents which have become void:—

2852. W. S. Gamble, of Islington. An improved salinometer. Dated 23rd October, 1862.
2894. A. Peck, of Manchester. Improvements in apparatus for evaporating saccharine and saline solutions. Dated 27th October, 1862.
2937. W. R. Bowditch, of Wakefield, York. Improvements in carburetted or naphthalizing gas and in the apparatus employed therein. Dated 31st October, 1862.
2981. J. Slessor, of Glasgow. Improvements in distilling alcoholic spirits. Dated 18th October, 1869.
2700. C. E. Brooman, of London. Improved arrangements of apparatus for storing or holding petroleum and other inflammable liquids. Dated 18th October, 1869.
2749. J. C. Stevenson, of South Shields, Durham. Improvements in furnaces for the manufacture of alkali. Dated 24th October, 1866.
2768. W. Weldon, of Highgate. An improved method of decomposing chloride of sodium and other compounds by means of steam. Dated 26th October, 1866.
2778. E. Howard, of Redhill, Surrey. Securing perfect immunity from danger in the use of paraffine, camphine, and other lamps liable hitherto to explode, by enclosing the flame in a crystal oil, paraffine, camphine, balmatine or other combustible carbonaceous oils. Dated 27th October, 1866.
2788. C. McBeath, of Blackburn, Lancashire. Improvements in the treatment or distillation of shale, coal, and other bituminous substances, and in the means or apparatus employed therefor. Dated 29th October, 1866.
2833. J. Becker, of Bordeaux, France. An improved apparatus for stoppering bottles. Dated 1st November, 1864.
2847. J. Harris, of Threadneedle-street. Improvements in apparatus for the production, distillation, and refining of hydrocarbon and other oils from shale, cannel, coal, peat, lignite, or other carbonaceous bituminous minerals. Dated 3rd November, 1866.
2854. R. McEggart, and J. Holdforth, both of Bradford, York. An improved pill-making machine. Dated 3rd November, 1866.
2958. F. Clavelier, of Colmar, Alsace. Improvements in treating waste solutions obtained from burnt cupreous pyrites. Dated 3rd November, 1866.
3002. W. Giese, of Berlin, Prussia. A chemical decoration on gold, silver, and other similar metals, and colours, on porcelain, glass wares, crystal wares, delf wares, potter's wares, and similar matters, called Grise's Proceeding. Dated 15th November, 1866.
3014. A. E. Blavier, of Angers, France. An improved method of preserving cereals and dry vegetable substances, both vegetable and animal. Dated 17th November, 1866.
3030. A. P. Price, of Lincoln's-inn-fields. Improvements in the manufacture of carbonate of soda. Dated 19th November, 1866.

Specifications published during the month:—

694. L. M. Ruiz Purifying and clarifying oils. 8d.

727. G. Spencer and J. Barker. Preserving animal and vegetable substances. 6d.
732. W. Weldon. Manufacture of chlorine. 2s. 6d.
790. H. D. Rawlings. Filling bottles with aerated liquors. 4d.
798. W. McAdam and S. Schuman. Packing bottles, &c. 10d.
815. J. Carter. Distincting and deodorizing fecal matters, &c. 4d.
819. C. F. Claus. Manufacture of carbonate of potash. 6d.
847. J. Hamilton and R. Paterson. Treating fermentable and aerated beverages. 2d.
856. H. B. Newton. Measuring liquids. 1s. 6d.
872. J. J. Hicks. Stoppers for bottles. 4d.
881. L. A. Israel. Manufacture of sulphuric acid. 8d.
886. J. Horner. Protecting nitro glycerine for conveyances and storage. 4d.
917. W. R. Lake. Electro-magnetic machine. 1s. 2d.
924. G. Dymond. Baking-powder. 4d.
933. B. J. Mills. Extracting oleaginous matters, &c. 1s.
935. E. H. Huch. Storing and preserving food on board ship. 10d.
939. W. R. Lake. Manufacture of soda and potash. 6d.
956. T. E. Williams. Distilling hydrocarbon oils. 8d.
973. R. Jones. Preserving food. 4d.
987. E. O'Connell. Feeding bottles. 6d.
1023. J. Winter, junr. Filling and corking bottles and jars. 4s.
1028. J. Stertker. Expressing oils, &c. 8d.
1059. W. H. Balmain. Preparing and using oxidizing agents. 4d.
1060. L. Mond. Utilizing soda and potash waste. 4d.
1070. J. Pattinson. Utilizing ammoniacal skimmings. 4d.
1103. E. C. G. Stanton. Applying, treating, and utilizing materials for deodorizing. 6d.
1138. J. H. Johnson. Dental wash. 4d.
1139. M. Samuelson and C. Eskrett. Expressing oils, &c. 4d.
1142. A. M. Clark. Nipples for feeding bottles. 4d.
1153. C. E. Brooman. Burning hydrocarbons. 8d.
1165. A. W. C. Williams. Bottles and jars. 6d.
1187. H. W. Deane. Bottles, jars, &c. 4d.
1390. W. MacKenzie. Cattle food. 4d.

STEREOSCOPIC COMPANY'S CHRISTMAS NOVELTIES.

We hope readers of the CHEMIST AND DRUGGIST will more and more take to the sale of such goods as are provided by the above-mentioned company. Their shops and connexion are often the best adapted for such business; it affords good profit, and as chemistry plays a considerable part in the manufacture of some of the articles, the alliance is perfectly legitimate. The most chemical novelty introduced this year is the Coruscating Metallic Wheel, which is a fire-work of great beauty. These wheels are made in two kinds, and in each, by the use of different chemicals, six varieties of form and colour follow each other. The Chameleon Top gives most striking results of a somewhat similar character by means of mechanical arrangements. The conjuring tricks brought out this year will, we think, prove the Company's greatest success; but we should only make a dull description if we attempted to explain the mysteries which, when they are seen, will cause immense fun and astonishment. Of all things we have seen, perhaps the Scientific Mystery is the best. It is purely scientific, and until it is professionally appreciated the results seem miraculous; for it reveals hidden questions, and makes known numbers, etc., entirely concealed from every human eye. The Vanishing Coin, the Invisible Gift, the Obedient Bill, and the Enchanted Bottle, are equally mysterious though more earthly. While referring to the Stereoscopic Company's goods we must mention the newest and most beautiful form of photography which they are now bringing out, and which they describe as Permanent Photographs in Opal Crystal. They will no doubt soon be popular. A guinea box encloses some of all the articles we have mentioned, and more besides; and from this price chemists are allowed a handsome reduction.

CARBOLIC ACID IN NICARAGUA.

We subjoin a translation of a letter that appeared in the *Moniteur Scientifique*, for November, 1869:—"Valle Menier, Nicaragua, 3rd September, 1869. My dear Doctor,—At the commencement of 1867, the cholera began to spread rapidly in this country, and did not decline until it had decimated, during fifteen months, all the pueblos, enter of another. I wrote to Mr. Menier, who, always full of kindness to us, sent me 600 bottles of Liquid Carbolic Acid from England, supplied by F. C. Calvert & Co., with which I caused all the corridors and interiors of our houses to be watered every day (in the proportion of a tumblerful of acid in a garden-can of water), and we have had the happiness to be without a single case to deplore amongst our population, which is never less than 300; whilst at Nandame, an Indian village, half-a-league from Valle Menier, several inhabitants were every day interred. I do not know if I ought to attribute this result to the properties of carbolic acid, which you

praise so much; but what I am sure of is, that the period of my watering coincides with the disappearance of intermittent fever, that dreadful scourge which attacks us four or five times yearly, and that all the fleas, chiques (a species of gnat), flies, etc. (prolific vermin, which multiply indefinitely under our beautiful sun), have disappeared completely from here. One becomes quickly accustomed to the odour of this acid, which after all is an agreeable one; this is at least our experience here. In agriculture, carbolic acid renders me great service by driving away a particular species of ant which locates itself in the porous wood of the chocolate plant after the pruning of the trees. I mix a very small quantity with ochre ground in oil, and apply this odorous colour with a small brush, and the wound thus treated cicatrises healthily and quickly. The odour of the acid drives away the ants, and the colour permits the water to pass off, which would otherwise rot the tree and leave a hole in it.—A. SCHIFFMANN.—To Dr. Quesneville, Paris."

A VACCINATING MACHINE.

Mr. A. G. Fisher, of New York, advertises for sale an instrument by means of which vaccination may be readily performed without pain. It can, he says, be applied to a sleeping infant without waking it.



An active business has been transacted since our last report in many departments, especially in chemicals, and we close the year with a more decidedly healthy tone than we have known for some time past. The reports from all the manufacturing quarters are very encouraging, most of the works being full of orders, and prices tolerably firm. Saltpetre, which at the date of our last report was advancing, has experienced a considerable lull in the demand, but the market is now somewhat brisker again, though prices are still lower than in our previous quotation. Tartaric in request, at 1s. 1½d. for Foreign; English 1s. 2d. Citric has declined to 2s. 4d. Oxalic dull, at 7½d. per lb. Soda Ash selling more readily, at 1½d. to 2d. per degree, as in quality, and some quantity has been sold for forward at 1½d. Caustic steady, at 13s. 6d. to 13s. 9d. for 60 per cent., and 16s. 6d. per cwt. for 70 per cent. Soda Crystals selling at 24 5s., and Bicarbonate at 29 15s. per ton. Saltcake dull, at 23 per ton. Phosphate held at 33s. 6d., and refined Borax at 67s. 6d. per cwt. Prussiate offering at 1s. for yellow, and 1s. 9d. per lb. for red. Bichrome firm, at 5½d. per lb. Chlorate dull at 10½d. per lb. Muriate steady at 28 10s. per ton. Sal-Ammoniac in demand at 40s. for first, and 39s. per cwt. for second quality. Sulphate steady at 16s. 6d. to 17s. per cwt. Carbonate has advanced to 6d. per lb. Alum moving off at 27 for lump, 27 10s. for powdered, and 28 5s. per ton for ground. Sulphur quick; roll, 210 to 210 5s., and flour 12 per cwt. Bleaching Powder selling at 7s. 6d. per cwt. Brown Acetate dull at 13s. per cwt. Magnesia: Carbonate 42s. 6d. per cwt. Calcined 1s. 6d. per lb. Arsenic: Powdered steady at 27 5s. per ton. Phosphorus: Wedges 1s. 5½d., and sticks 1s. 9½d. per lb. Copperas selling at 8½d. 6d. per ton. Copper: Sulphate held at 23s. 6d. to 24s. per cwt. Verdigris has advanced to 1s. 1d. per lb. Lead: Sugar, white 39s., and brown 26s. 6d. per cwt. Nitrate 32s. 6d. per cwt.

There has been a considerable advance in the price of Antimony, and its preparations will be dearer. Sulphate of Copper is already quoted higher, and will probably advance a little more.

DRUGS.

An active demand and ready sale for many of the chief drugs has been the chief characteristic of the past month. The Opium trade is still very sensitive, and a considerable advance has again taken place. There can be little doubt that with the rapidly-increasing cultivation of the poppy, which we have before alluded to in these columns, we shall in time get opium at a much more reasonable and settled

price. In China, where the best customers are found, they are beginning to grow it for themselves; and we learn an attempt is likely to be made to introduce its cultivation in some of the Southern states of America. If the supply goes on increasing, it is to be hoped, for the sake of human life and happiness, the demand will decrease. At present, it must be admitted, there seem no signs of the latter consummation. The stock of Camphor, already large, is still increasing, and more is coming. Sales have only been effected by submitting to a further decline. We have been favoured with the following special report of the markets for East Indian produce, which is most reliable:—Cinnamon, rather more doing, and market firmer. Cassia, in very good demand. Cloves, fair demand. Cocoa-nut Oil, better market. Cardamoms, advancing. Lemon Grass Oil, dull. Ginger, ready sale for good qualities. Pepper, good steady demand. Gum Animi, of fine quality, scarce, and wanted. The same remark also applies to Gum Arabic, Myrrh, Ammoniacum, and Olibanum; but Gum Benjamin is dull. Of Aloes there is plenty of all kinds offering except the best. Turmeric sells steadily. Large arrivals of Isinglass have made the market easier, but there is still a good demand. Tinnevely Senna is quiet, but Bombay is wanted. Red Sanders is very much inquired for, and the supply very limited. Cochineal remains at previous rates. Barks are quoted higher, but Balsam of Peru is cheaper.

OILS.

Linseed, which has ruled during the week at 228 15s. to 229 on the spot here, has recently become rather firmer, and the latter is the present price. Hull has also been a little dearer, 228 10s. having been paid on the spot, 229 15s. for January to April, and 231 for April-June. An improvement has taken place in Rape, English brown on the spot being now worth 237 10s., and for January to April 238 10s., buyers. Refined 239 10s. to 240. Foreign 241 to 242. For some refined Cotton Oil for the month 235 10s. has been taken, but as high as 236 10s. has been paid for a particular make. Hull refined is scarce on the spot, and 234 5s. to 234 10s. is demanded, but January to June deliveries offer at 234, while the price here is 235 to 236 according to make. A parcel of filtered Madras Ground Nut has been sold at 240 10s., and some Niger at 236 10s. More business has been done in Olive, and 256 paid for Gioja, 255 Spanish, 253 Dalmatia, and 252 Tunis. Fifty tons Mogador have been sold at 250 5s. Cocoa-Nut has maintained the prices realized on Friday last, and sales of Coochin have taken place at 243 for good merchantable, and at 243 10s. for fine; 40 tons Ceylon have been sold at 241, and 50 tons to arrive at a little over that price, 11 pipes of the latter of common quality sold by auction at 240, and the chief part of 243 casks, Sydney middling to fair at 237 10s. to 238 5s., ordinary to low middling 236 to 237. The market for Palm has been quiet at 240 10s. to 241 for fine Lagos, 121 casks of which, offered by auction, were withdrawn, and 43 casks Palm-Nut Kernel bought in at 238 10s. There has been no improvement in the demand for Crude since the late reduction to 286. Some small sales of pale Southern have been made at 240. Pale Seal is scarce and quoted 240 10s. to 241. Cod is dull for want of demand at 241 10s.

Strained American Rosin has been sold at 6s. 3d. ex warehouse, in craft it offers at 6s., at about which price 1,000 barrels to arrive have been sold. Brai clair 5s. 9d. on the spot, and 5s. 6d. to arrive.

TURPENTINE.—For some small quantities of American Spirits 29s. have been paid, but for quantity 29s. 9d. would be taken.

Arrivals of Stockholm Tar during the week amount to 7,990 barrels, and 1,562 half-barrels. A large cargo from Uleaborg has been sold at 18s., and a cargo arrival reported sold to-day at 18s. 3d., for Archangel 18s. 6d. is asked landed.

PETROLEUM.—A further improvement has taken place in this market, and about 1,000 barrels American refined are reported to have been sold during the last two days at 1s. 8½d. to 1s. 8½d., and there are buyers for January at 1s. 7½d. Our stock is 23,456 barrels and 17,744 cases, and the deliveries last week were equal to 2,283 barrels, against 13,597 and 3,611 respectively same time last year. There continues to be a good demand for Coal Oil, but in Naphtha there is very little doing.

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mining-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from their useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

| CHEMICALS. | 1869. | | | 1868. | | |
|---|--------------|-------|----------|-----------|-------|----------|
| | December. | s. d. | to s. d. | December. | s. d. | to s. d. |
| ACIDS | | | | | | |
| Acetic | 0 4 | 0 | 0 | 0 4 | 0 | 0 |
| Citric | 2 23 | 2 | 3 | 2 5 | 2 | 6 |
| Nitric | 0 5 | 0 | 0 54 | 0 5 | 0 | 0 54 |
| Oxalic | 0 73 | 0 | 0 8 | 0 73 | 0 | 0 8 |
| Sulphuric | 0 01 | 0 | 1 | 0 01 | 0 | 1 |
| Tartaric crystal .. | 1 23 | 0 | 0 | 1 14 | 0 | 0 |
| powdered .. | 23 | 0 | 0 | 1 2 | 0 | 0 |
| ANTIMONY ore, per ton | 320 | 0 | 360 | 280 | 0 | 300 |
| crude .. per cwt | 35 | 0 | 0 | 23 | 0 | 26 |
| regulus .. | 65 | 0 | 0 | 48 | 0 | 50 |
| star .. | 65 | 0 | 70 | 48 | 0 | 50 |
| ARSENIC lump, .. | 16 | 0 | 16 | 16 | 0 | 16 |
| powder .. | 7 3 | 7 | 6 | 7 6 | 8 | 0 |
| BRIMSTONE, rough .. per ton | 160 | 0 | 0 | 160 | 0 | 165 |
| roll .. per cwt | 11 | 0 | 0 | 11 | 0 | 11 6 |
| sour .. | 11 | 0 | 0 | 14 | 0 | 14 6 |
| IODINE, dry .. | 0 9 | 0 | 0 10 | 0 9 | 0 | 0 10 |
| IVORY BLACK, dry, per oz. | 0 | 0 | 0 | 0 | 0 | 0 |
| MAGNESIA, calcined, per lb. | 1 2 | 0 | 0 | 1 6 | 0 | 1 8 |
| MANGANESE, per bottle | 137 | 0 | 138 | 137 | 0 | 138 |
| MINIUM, red, per cwt. | 30 | 0 | 31 | 30 | 0 | 31 |
| orange .. | 31 6 | 32 | 6 | 31 9 | 32 | 6 |
| PRECIPITATE, red .. per lb. | 2 6 | 0 | 0 | 2 6 | 0 | 0 |
| Prussian Blue .. | 0 | 0 | 0 | 2 | 0 | 0 |
| SALT— | | | | | | |
| Alum | per ton 145 | 0 | 155 | 0 | 150 | 0 |
| powder .. | 165 | 0 | 170 | 0 | 170 | 0 |
| Ammonia: | | | | | | |
| Carbonate | per lb. 0 53 | 0 | 6 | 0 53 | 0 | 6 |
| Hydrochlorate, crude, white | per ton 480 | 0 | 560 | 0 | 500 | 0 |
| British (see Sal Ammoniac) | | | | | | |
| Sulphate | per ton 340 | 0 | 360 | 0 | 330 | 0 |
| Argol, Cape | per cwt 65 | 0 | 78 | 6 | 67 | 6 |
| France .. | 22 | 0 | 24 | 25 | 0 | 27 |
| Opato, red .. | 22 | 0 | 24 | 25 | 0 | 27 |
| Sicily .. | 32 | 0 | 40 | 45 | 0 | 50 |
| Naples, white .. | 55 | 0 | 65 | 50 | 0 | 55 |
| Florence, white .. | 0 | 0 | 0 | 70 | 0 | 75 |
| red .. | 0 | 0 | 0 | 60 | 0 | 65 |
| Bologna, white .. | 0 | 0 | 0 | 0 | 0 | 0 |
| Asbes (see Potash and Soda) | | | | | | |
| Bleaching powd., per cwt. | 8 6 | 8 | 9 | 10 9 | 11 | 0 |
| Borax, crude .. | 25 | 0 | 40 | 25 | 0 | 35 |
| (Tincal) .. | 55 | 0 | 65 | 30 | 0 | 52 |
| British refined, .. | 69 | 0 | 70 | 70 | 0 | 0 |
| Colomel | per lb. 2 5 | 0 | 0 | 2 5 | 0 | 0 |
| Copper: | | | | | | |
| Sulphate | per cwt. 23 | 6 | 24 | 0 | 24 | 0 |
| Copperas, green .. | 52 | 6 | 60 | 55 | 0 | 60 |
| Corrosive Sublimate, .. | 41 | 0 | 11 | 0 | 0 | 0 |
| Cr. Tartar, French, per cwt. | 82 | 0 | 0 | 83 | 0 | 84 |
| Venetian grey .. | 0 | 0 | 0 | 0 | 0 | 0 |
| brown .. | 65 | 0 | 74 | 62 | 6 | 72 |
| Epsom Salts | per cwt. 7 | 6 | 8 | 0 | 8 | 6 |
| Glauber Salts | 4 6 | 6 | 0 | 5 6 | 6 | 0 |
| Lime: | | | | | | |
| Acetate, white, per cwt. | 12 | 6 | 23 | 0 | 12 | 6 |
| Magnesia .. | 42 | 6 | 0 | 0 | 42 | 6 |
| Carbonate | 0 53 | 0 | 0 54 | 0 5 | 0 | 0 |
| Potash: | | | | | | |
| Bichromate | per lb. 0 53 | 0 | 0 54 | 0 5 | 0 | 0 |
| Carbonate: | | | | | | |
| Potash, Canada, 1st sort | per cwt. 31 | 6 | 31 | 9 | 33 | 0 |
| Pearlashes, Canada, 1st sort | per cwt. 32 | 6 | 33 | 0 | 33 | 0 |
| Chlorate | 0 103 | 0 | 0 | 0 104 | 0 | 1 1 |
| Prussiate | per lb. 0 11 | 0 | 0 | 0 | 0 | 0 |
| red .. | 1 83 | 1 | 10 | 1 94 | 1 | 10 |
| Tartarate (see Argol and Cream of Tartar) | | | | | | |
| Potassium: | | | | | | |
| Chloride | per cwt. 8 | 0 | 0 | 8 | 3 | 8 |
| Iodide | per lb. 12 | 0 | 0 | 12 | 0 | 0 |
| Quinine: | | | | | | |
| Sulphate, British, in bottles | per oz. 5 | 9 | 0 | 0 | 4 | 11 |
| Sulphate, French .. | 5 | 4 | 0 | 0 | 4 | 6 |
| Sal Acetate | per lb. 0 | 10 | 0 | 0 | 10 | 0 |
| Sal Ammoniac, Brit. cwt. | 38 | 6 | 40 | 0 | 34 | 0 |
| Salt-petre: | | | | | | |
| Bengal, 6 per cent. or under | per cwt. 22 | 3 | 23 | 0 | 24 | 3 |
| Bengal, over 6 per cent. .. | per cwt. 21 | 3 | 22 | 0 | 23 | 9 |
| Madras | 20 | 0 | 21 | 0 | 22 | 0 |
| Bombay & Kurnachee p. ct. | 0 | 8 | 0 | 0 | 8 | 0 |
| European | 25 | 0 | 26 | 0 | 0 | 0 |
| British, refined .. | 25 | 6 | 26 | 6 | 27 | 0 |
| Soda: Bicarbonate, p. cwt. | 9 | 9 | 0 | 0 | 11 | 6 |
| Carbonate: | | | | | | |
| Soda Ash | per cwt. 0 | 13 | 0 | 0 | 14 | 0 |
| Soda Crystals per ton | 75 | 0 | 77 | 6 | 87 | 0 |

| Soda: | 1869. | | | 1868. | | |
|--|-------------|-------|-------|-------|-------|-------|
| | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. |
| Hyposulphite, .. per cwt. | 16 | 0 | 18 | 0 | 16 | 0 |
| Nitrate .. | 16 | 6 | 17 | 0 | 15 | 3 |
| SUGAR OF LEAD, White, cwt. | 49 | 0 | 0 | 0 | 27 | 6 |
| Brown .. | 29 | 0 | 30 | 0 | 26 | 6 |
| SULPHUR (see Brimstone) | | | | | | |
| VERMILION, .. per lb. | 1 | 0 | 1 | 0 | 0 | 1 |
| VERMILION, English, .. per lb. | 2 | 6 | 3 | 3 | 2 | 6 |
| China .. | 2 | 10 | 0 | 0 | 2 | 7 |
| DRUGS. | | | | | | |
| ALCOH. | | | | | | |
| Hepatic, .. per cwt. | 60 | 0 | 153 | 0 | 100 | 0 |
| Nitric .. | 100 | 0 | 230 | 0 | 150 | 0 |
| Socotrine .. | 23 | 0 | 30 | 0 | 29 | 0 |
| Cape, good .. | 17 | 0 | 27 | 0 | 16 | 0 |
| inferior .. | 30 | 0 | 23 | 0 | 27 | 0 |
| Barbadoes .. | 27 | 0 | 30 | 0 | 27 | 0 |
| AMBERGRIS, grey .. | 27 | 6 | 30 | 0 | 30 | 0 |
| BALSAMS— | | | | | | |
| Canada | per lb. 1 | 2 | 0 | 0 | 1 | 3 |
| Capivi .. | 1 | 10 | 1 | 11 | 1 | 9 |
| Peru .. | 10 | 3 | 10 | 6 | 10 | 6 |
| Tolu .. | 2 | 2 | 3 | 2 | 2 | 8 |
| BARKS— | | | | | | |
| Canella alba | per cwt. 20 | 0 | 34 | 0 | 35 | 0 |
| Cascarilla .. | 22 | 0 | 34 | 0 | 23 | 0 |
| Peru, crown & grey per lb. | 0 | 10 | 2 | 3 | 0 | 9 |
| Culisyas, lat .. | 3 | 9 | 3 | 11 | 2 | 8 |
| quill .. | 1 | 10 | 3 | 10 | 0 | 9 |
| Carthagena .. | 1 | 0 | 1 | 11 | 0 | 9 |
| Pitayo .. | 0 | 6 | 1 | 5 | 0 | 7 |
| Ro .. | 1 | 6 | 7 | 9 | 1 | 9 |
| Bucho Leaves .. | 0 | 4 | 0 | 6 | 0 | 4 |
| CAMPHOR, China, .. per cwt. | 87 | 6 | 90 | 0 | 145 | 0 |
| Japan .. | 92 | 6 | 95 | 0 | 145 | 0 |
| Rein Eng. per lb. | 1 | 3 | 0 | 0 | 1 | 11 |
| CANTHARIDS .. | 1 | 10 | 3 | 2 | 1 | 9 |
| CHAMOMILE FLOWERS, p. cwt | 40 | 0 | 72 | 6 | 55 | 0 |
| CASTOREUM | per lb. 4 | 0 | 32 | 0 | 5 | 0 |
| DRAGON'S BLOOD, red, p. ct. | 100 | 0 | 160 | 0 | 100 | 0 |
| lump .. | 100 | 0 | 200 | 0 | 100 | 0 |
| FRUITS AND SEEDS (see also Seeds and Spices) | | | | | | |
| Anise, China Star pr cwt. | 112 | 6 | 115 | 0 | 95 | 0 |
| German, &c. .. | 25 | 0 | 38 | 0 | 32 | 0 |
| Beans, Tonquin .. | 1 | 0 | 1 | 6 | 1 | 2 |
| Cardamoms, Malabar | | | | | | |
| good .. | 7 | 10 | 8 | 6 | 10 | 0 |
| inferior .. | 5 | 9 | 7 | 0 | 6 | 6 |
| Madras .. | 4 | 6 | 8 | 4 | 5 | 9 |
| Ceylon .. | 2 | 6 | 2 | 10 | 10 | 3 |
| Corozo Nuts, .. per cwt. | 14 | 0 | 18 | 0 | 12 | 0 |
| Cassia Fistula .. | 16 | 0 | 35 | 0 | 15 | 0 |
| Castor Seeds .. | 10 | 0 | 12 | 0 | 11 | 0 |
| Cocculus Indicus .. | 21 | 0 | 22 | 0 | 23 | 0 |
| Colocynthis, apple, .. per lb. | 0 | 5 | 0 | 9 | 0 | 6 |
| Croton Seeds .. | per cwt. 46 | 0 | 55 | 0 | 90 | 0 |
| Cubebs .. | 32 | 0 | 35 | 0 | 40 | 0 |
| Divin .. | 90 | 0 | 100 | 45 | 10 | 15 |
| Divin .. | 10 | 6 | 12 | 6 | 10 | 6 |
| Fennugreek .. | 12 | 0 | 17 | 0 | 11 | 0 |
| Fenugreek .. | 36 | 0 | 0 | 0 | 38 | 0 |
| Juniper Berries .. | 7 | 0 | 15 | 0 | 11 | 0 |
| Myrobals .. | 9 | 15 | 0 | 11 | 0 | 12 |
| Nux Vomica .. | 11 | 0 | 14 | 0 | 12 | 0 |
| Tamarinds, East India .. | 10 | 0 | 16 | 0 | 32 | 0 |
| East India, .. | 12 | 0 | 22 | 0 | 35 | 0 |
| Vanilla, large .. | 22 | 0 | 33 | 0 | 10 | 0 |
| inferior .. | 11 | 0 | 20 | 0 | 4 | 0 |
| Wormseed .. per cwt. | 25 | 6 | 30 | 0 | 25 | 0 |
| GINSENG, Preserved, in bond | | | | | | |
| (duty 1d. per lb.) per lb. | 0 | 6 | 0 | 9 | 0 | 6 |
| Gums (see separate list) | | | | | | |
| HONEY, Narbonne .. | 21 | 0 | 0 | 0 | 21 | 0 |
| Cuba .. | 28 | 0 | 30 | 0 | 22 | 0 |
| Jamaica .. | 28 | 0 | 30 | 0 | 22 | 0 |
| PERACUANTRA .. | 5 | 6 | 5 | 9 | 5 | 6 |
| INGLISLAND, Brazil .. | 2 | 7 | 4 | 8 | 3 | 6 |
| Tongat .. | 2 | 1 | 4 | 10 | 2 | 3 |
| East India .. | 21 | 0 | 4 | 2 | 2 | 3 |
| West India .. | 31 | 0 | 4 | 7 | 4 | 0 |
| Russ. long staple .. | 3 | 0 | 8 | 0 | 0 | 0 |
| leaf .. | 3 | 0 | 5 | 9 | 0 | 0 |
| Simovia .. | 1 | 6 | 2 | 6 | 1 | 6 |
| JALAP, good .. | 3 | 2 | 3 | 10 | 3 | 9 |
| infer. & stems .. | 0 | 6 | 3 | 0 | 1 | 0 |
| LEMON JUICE, .. per degree | 0 | 1 | 0 | 14 | 0 | 14 |
| LIQUORICE, Spanish per cwt. | 63 | 0 | 68 | 0 | 65 | 0 |
| Italian .. | 48 | 0 | 65 | 0 | 50 | 0 |
| MARNA, flaky .. per lb. | 3 | 6 | 4 | 6 | 3 | 6 |
| small .. | 0 | 2 | 6 | 1 | 1 | 9 |
| MYSK .. | per oz. 17 | 0 | 33 | 0 | 22 | 0 |
| OILS (see also separate list) | | | | | | |
| Almond, expressed per lb. | 1 | 3 | 0 | 0 | 1 | 3 |
| Castor, 1st pale .. | 0 | 5 | 0 | 5 | 0 | 5 |
| second .. | 0 | 4 | 0 | 5 | 0 | 5 |
| infer. & dark .. | 0 | 4 | 0 | 5 | 0 | 5 |
| Bombay (in cases) .. | 0 | 4 | 0 | 5 | 0 | 5 |
| Cod Liver .. per gall. | 0 | 6 | 0 | 6 | 0 | 6 |
| Croton .. per oz. | 0 | 3 | 0 | 4 | 0 | 3 |
| Essential Oils: | | | | | | |
| Almond | per lb. 42 | 0 | 0 | 0 | 40 | 0 |
| Aniseed .. | per lb. 9 | 0 | 0 | 0 | 10 | 0 |
| Bay .. | per cwt. 65 | 0 | 70 | 0 | 75 | 0 |
| Bergamot .. | per lb. 8 | 0 | 14 | 0 | 12 | 0 |
| Cassia (in bond) per oz. | 0 | 14 | 0 | 0 | 0 | 15 |
| Caraway .. | per lb. 6 | 6 | 6 | 6 | 5 | 0 |
| Cajeput .. | 5 | 4 | 5 | 5 | 5 | 0 |
| Cinnamon .. | per oz. 1 | 0 | 4 | 6 | 1 | 0 |

| Essential Oils, continued— | | 1860. | | 1868. | |
|--|-------|-------|-------|-------|-------|
| | s. d. | s. d. | s. d. | s. d. | s. d. |
| Cinnamon-leaf . . . per oz. | 0 | 4 | 0 | 66 | 0 |
| Citronella | 0 | 24 | 0 | 23 | 0 |
| fine | 0 | 23 | 0 | 23 | 0 |
| Clove per lb. | 2 | 5 | 0 | 2 | 6 |
| Juniper | 1 | 9 | 0 | 2 | 0 |
| Lavender | 3 | 0 | 4 | 3 | 0 |
| Leimon | 5 | 0 | 7 | 3 | 0 |
| Lemon-grass . per oz. | 0 | 41 | 0 | 41 | 0 |
| Neroli | 0 | 5 | 0 | 0 | 0 |
| Orange | 1 | 0 | 0 | 10 | 0 |
| Nutmeg | 5 | 0 | 7 | 5 | 0 |
| Strawge per lb. | 10 | 4 | 0 | 10 | 0 |
| Otto of Rose . . . per oz. | 13 | 0 | 20 | 15 | 0 |
| Peppermint . . . | | | | | |
| American . . . per lb. | 13 | 6 | 15 | 20 | 0 |
| English | 32 | 0 | 42 | 38 | 0 |
| Rosemary | 1 | 9 | 2 | 1 | 9 |
| Sassafras | 4 | 0 | 0 | 4 | 0 |
| Spiramint | 4 | 0 | 16 | 12 | 0 |
| Thyme | 1 | 10 | 2 | 1 | 10 |
| Mace, expressed . per oz. | 0 | 1 | 23 | 0 | 04 |
| OTTER | | | | | |
| Superior . . . lb. | 31 | 0 | 33 | 36 | 0 |
| Inferior | 23 | 0 | 20 | | |
| QUASSIA (bitterwood) per ton | 140 | 0 | 160 | 0 | 200 |
| RUBBER, China, good and fine per lb. | 4 | 6 | 8 | 5 | 0 |
| Good, mid. to ord. | 0 | 8 | 4 | 1 | 0 |
| Dutch trimmed . . | 9 | 6 | 10 | 10 | 0 |
| Russian | 10 | 0 | 10 | 10 | 0 |
| ROOTS—Columba . per wt. | 30 | 0 | 40 | 27 | 0 |
| China | 30 | 0 | 40 | 30 | 0 |
| Galangal | 11 | 0 | 10 | 10 | 0 |
| Gentian | 19 | 0 | 20 | 17 | 0 |
| Hellebore | 22 | 0 | 30 | 22 | 0 |
| Ortiz | 38 | 0 | 44 | 38 | 0 |
| Peppery | 53 | 0 | 60 | 53 | 0 |
| Pink per lb. | 0 | 7 | 0 | 0 | 7 |
| Rhatany | 0 | 5 | 0 | 0 | 6 |
| Seneca | 1 | 6 | 0 | 1 | 6 |
| Snake | 4 | 0 | 4 | 4 | 0 |
| SAFFRON, Spanish . . | 32 | 0 | 40 | 28 | 0 |
| SALEP per cwt. | 110 | 0 | 0 | 100 | 0 |
| SARAWA, BURLIA, India . per lb. | 1 | 0 | 1 | 1 | 0 |
| Harc | 1 | 0 | 1 | 1 | 0 |
| Paras | 1 | 2 | 1 | 1 | 0 |
| Jamaica | 0 | 11 | 2 | 0 | 10 |
| SASSAPARILLA . . per wt. | 40 | 0 | 40 | 15 | 0 |
| SCAMONEX, Virgin . per lb. | 23 | 0 | 32 | 23 | 0 |
| second & ordinary . | 10 | 0 | 23 | 10 | 0 |
| SEDA, Bombay . . . | 0 | 23 | 0 | 0 | 23 |
| finest | 0 | 23 | 0 | 0 | 22 |
| Alexandria | 0 | 4 | 1 | 0 | 6 |
| SERMACET, refined . | 1 | 6 | 1 | 1 | 5 |
| American | 1 | 6 | 1 | 1 | 5 |
| SQUILL | 0 | 11 | 0 | 0 | 11 |
| GUMS. | | | | | |
| AMMONIAC drop . . per cwt. | 210 | 0 | 230 | 0 | 220 |
| lump | 120 | 0 | 200 | 0 | 160 |
| ANIMI, fine | 210 | 0 | 200 | 0 | 200 |
| bold scraped . . . | 220 | 0 | 300 | 0 | 210 |
| sorts | 100 | 0 | 300 | 0 | 150 |
| dark | 80 | 0 | 100 | 0 | 0 |
| ARABY | | | | | |
| E. I. fine . . . | 77 | 0 | 82 | 80 | 0 |
| pale picked . . . | 77 | 0 | 82 | 80 | 0 |
| arts, gd. to fin . | 65 | 0 | 76 | 0 | 77 |
| garbling | 170 | 0 | 160 | 55 | 40 |
| TURKEY, pick. gd. to fin | 170 | 0 | 210 | 0 | 210 |
| second & inf. . . | 90 | 0 | 160 | 0 | 160 |
| in sorts | 75 | 0 | 102 | 70 | 0 |
| Garb | 50 | 0 | 44 | 53 | 48 |
| BARBARY, white . . . | 75 | 0 | 73 | 70 | 0 |
| brown | 75 | 0 | 78 | 70 | 0 |
| AUSTRALIA | 70 | 0 | 70 | 70 | 0 |
| ASAPOTIDA, com. gd . | 350 | 0 | 0 | 60 | 100 |
| BENJAMIN, 1st qual . | 420 | 0 | 480 | 340 | 0 |
| 2nd | 140 | 0 | 220 | 140 | 0 |
| 3rd | 60 | 0 | 120 | 110 | 0 |
| COPAL, Angola, red . | 100 | 0 | 120 | 60 | 70 |
| Sierra | 105 | 0 | 119 | 72 | 0 |
| Bengu Leone . per lb. | 32 | 0 | 55 | 29 | 45 |
| Mandila | 32 | 0 | 55 | 29 | 45 |
| DAMMAR, pale . . . | 90 | 0 | 95 | 90 | 0 |
| EUPHORBUM | 13 | 0 | 14 | 13 | 0 |
| GAU | 40 | 0 | 40 | 22 | 230 |
| GAUGAUX, peckd pipe | 230 | 0 | 320 | 400 | 0 |
| KINO per cwt. | 60 | 0 | 140 | 60 | 0 |
| KOWEE | 45 | 0 | 45 | 96 | 0 |
| scraped | 63 | 0 | 120 | 50 | 130 |
| Mastic, pickd . . . per cwt. | 5 | 6 | 6 | 5 | 0 |
| MYRIS, 1st qual . . | 130 | 0 | 220 | 260 | 0 |
| sorts | 90 | 0 | 170 | 80 | 160 |
| OLIBANUM, p. sorts | 70 | 0 | 85 | 75 | 0 |
| amber & ylw . . | 70 | 0 | 77 | 64 | 82 |
| garbling | 50 | 0 | 50 | 45 | 55 |
| SENEGAL per cwt. | 88 | 0 | 95 | 78 | 0 |
| SANDARAC | 71 | 0 | 102 | 80 | 105 |
| TRUS | 14 | 0 | 14 | 14 | 0 |
| THAIGACASTLE, lead . | 220 | 0 | 400 | 220 | 0 |
| in sorts | 115 | 0 | 210 | 150 | 0 |
| SEALS. | | | | | |
| pale, pale . . . per ton | 440 | 0 | 41 | 235 | 10 |
| yellow to tinged . | 37 | 0 | 40 | 32 | 0 |
| brown | 35 | 10 | 36 | 31 | 0 |
| SPRIME, body | 88 | 0 | 90 | 92 | 0 |
| head | 0 | 0 | 0 | 0 | 0 |

| | 1899. | | 1898. | | |
|---------------------------------|---------|------------|-------|----------|----------|
| Oils, continued:— | £ s. | £ s. | £ s. | £ s. | £ s. |
| Cod | 41 10 | .. 43 0 | 39 0 | .. 40 0 | .. 40 0 |
| Whale, South Sea, pale | 40 0 | .. 38 0 | 35 0 | .. 36 0 | .. 37 0 |
| " " " yellow | 38 0 | .. 37 0 | 35 0 | .. 36 0 | .. 37 0 |
| " " " brown | 35 0 | .. 33 0 | 33 0 | .. 34 0 | .. 35 0 |
| East India, Fish | 32 0 | .. 0 0 | 32 0 | .. 0 0 | .. 0 0 |
| OLIVE, Good oil | 62 0 | .. 60 0 | 57 0 | .. 58 0 | .. 59 0 |
| " " " yellow | 61 0 | .. 60 0 | 57 0 | .. 58 0 | .. 59 0 |
| Trieste | 56 0 | .. 0 0 | 61 0 | .. 0 0 | .. 0 0 |
| Levant | 51 10 | .. 0 0 | 56 0 | .. 0 0 | .. 0 0 |
| Mogador | 50 10 | .. 0 0 | 54 0 | .. 0 0 | .. 0 0 |
| Spartan | 50 0 | .. 56 0 | 50 0 | .. 56 0 | .. 57 0 |
| Sidly | 54 0 | .. 0 0 | 57 0 | .. 0 0 | .. 0 0 |
| Cocconut, Ceylon .. per ton | 43 0 | .. 0 0 | 45 10 | .. 0 0 | .. 0 0 |
| " " Cochin | 40 0 | .. 0 0 | 40 10 | .. 0 0 | .. 0 0 |
| " " Sydney | 34 0 | .. 41 0 | 35 0 | .. 45 0 | .. 43 0 |
| GROUNUT NUT AND GINSENG: | | | | | |
| Bombay | 0 0 | .. 0 0 | 0 0 | .. 0 0 | .. 0 0 |
| Madras | 0 0 | .. 0 0 | 33 0 | .. 0 0 | .. 0 0 |
| PALM, fine | 40 10 | .. 0 0 | 44 0 | .. 0 0 | .. 0 0 |
| LINED | 29 0 | .. 29 10 | 0 0 | .. 0 0 | .. 0 0 |
| RAPED | 29 0 | .. 29 10 | 0 0 | .. 0 0 | .. 0 0 |
| Foreign | 37 10 | .. 38 0 | 31 0 | .. 0 0 | .. 0 0 |
| Brown pale | 41 0 | .. 44 0 | 34 0 | .. 35 0 | .. 36 0 |
| " " brown | 38 10 | .. 0 0 | 31 0 | .. 32 0 | .. 33 0 |
| COTTONSEED | 29 0 | .. 29 10 | 27 0 | .. 27 0 | .. 27 0 |
| LARD | 77 0 | .. 0 0 | 67 0 | .. 69 0 | .. 69 0 |
| TALLOW | 35 0 | .. 0 0 | 37 0 | .. 0 0 | .. 0 0 |
| YACON | 52 0 | .. 52 0 | 20 0 | .. 20 0 | .. 20 0 |
| PETROLEUM, Crude | 14 0 | .. 0 0 | 13 0 | .. 13 0 | .. 13 0 |
| " refined, per gall. | 1 s. d. | .. 1 s. d. | s. d. | .. s. d. | .. s. d. |
| Spirit | 8 1 | .. 1 7 | 7 5 | .. 7 5 | .. 7 5 |
| SEEDS. | s. d. | s. d. | s. d. | s. d. | s. d. |
| CANARY | 50 0 | .. 60 0 | 60 0 | .. 68 0 | .. 68 0 |
| Canary, English per cwt. | 48 0 | .. 52 0 | 0 0 | .. 0 0 | .. 0 0 |
| Caraway do. | 48 0 | .. 52 0 | 0 0 | .. 0 0 | .. 0 0 |
| COBRANDER | 20 0 | .. 22 0 | 0 0 | .. 0 0 | .. 0 0 |
| LIMPEE, English per qr. | 42 0 | .. 44 0 | 42 0 | .. 44 0 | .. 44 0 |
| Hemp | 55 0 | .. 56 0 | 57 0 | .. 57 0 | .. 57 0 |
| " " Block S. and Calcutta | 58 0 | .. 59 0 | 61 6 | .. 62 0 | .. 62 0 |
| Bombay | 60 0 | .. 0 0 | 63 0 | .. 0 0 | .. 0 0 |
| St. Petersburg | 52 0 | .. 54 0 | 54 0 | .. 54 0 | .. 54 0 |
| Mustard, brown, per bush. | 7 0 | .. 10 0 | 6 0 | .. 0 0 | .. 0 0 |
| " white | 7 0 | .. 12 0 | 12 0 | .. 14 0 | .. 14 0 |
| Pepper, East India per qr. | 54 6 | .. 55 0 | 61 0 | .. 6 0 | .. 6 0 |
| SPICES. | | | | | |
| CASSIA LOGNNA ... per cwt. | 136 0 | .. 132 0 | 140 0 | .. 150 0 | .. 150 0 |
| " Bada | 45 0 | .. 83 0 | 69 0 | .. 84 0 | .. 84 0 |
| " Buds | 150 0 | .. 175 0 | 180 0 | .. 150 0 | .. 150 0 |
| CINNAMON, Ceylon, | | | | | |
| 1st quality | 0 0 | .. 3 8 | 3 2 | .. 3 8 | .. 3 8 |
| 2nd do. | 1 8 | .. 3 7 | 2 8 | .. 3 8 | .. 3 8 |
| 3rd do. | 1 7 | .. 3 4 | 1 8 | .. 3 8 | .. 3 8 |
| Tellicherry | 1 2 | .. 2 6 | 0 10 | .. 0 11 | .. 0 11 |
| Clove, Penang | 0 43 | .. 0 51 | 0 5 | .. 0 5 | .. 0 5 |
| " Amboyra | 0 43 | .. 0 51 | 0 34 | .. 0 34 | .. 0 34 |
| Zanzibar | 0 3 | .. 0 3 | 0 10 | .. 0 10 | .. 0 10 |
| GINGER, Jam, fine per cwt. | 36 0 | .. 100 0 | 33 0 | .. 80 0 | .. 80 0 |
| " To good | 25 0 | .. 0 0 | 24 0 | .. 0 0 | .. 0 0 |
| African | 21 0 | .. 28 0 | 26 0 | .. 27 0 | .. 27 0 |
| Bengal | 32 0 | .. 120 0 | 34 0 | .. 120 0 | .. 120 0 |
| Cochin | 21 0 | .. 120 0 | 34 0 | .. 120 0 | .. 120 0 |
| PERERA, Elk, Malabar, perib. | 0 5 | .. 0 51 | 0 41 | .. 0 41 | .. 0 41 |
| White, Tellicherry | 0 7 | .. 0 11 | 0 4 | .. 0 4 | .. 0 |